

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/663,015 Confirmation No.: 1737
Applicant : Polly Stecyk
Filing Date : September 15, 2003
Title : PASSIVE ENFORCEMENT METHOD FOR MEDIA RATINGS
Group Art Unit : 4115
Examiner : Junior O Mendoza
Docket No. : 705397.53
Customer No. : 34313

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
Mail Stop Box 1450
Alexandria, VA 22513-1450

Sir:

I, Polly Stecyk, declare as follows:

1. I am the only named inventor of the above-identified patent application.
2. Prior to April 2003, I conceived, in the United States, the invention disclosed and claimed in the above-identified patent application as evidenced by Exhibits A and B attached to this declaration.
3. Exhibit A is a true copy of a Mitsubishi Digital Electronics America (MDEA), Inc. Invention Disclosure Form I filled out and submitted to my employer MDEA prior to April 2003. Exhibit B is a true copy of an email and attachment, DOCSOC1-#133791-v2-MDEA_-_53_-_Spec_for_Passive_Enforcement_Method_for_Media_Ratings.DOC, sent from Kenneth S. Roberts, MDEA's patent attorney, to Jim Hicks, an employee of MDEA, on March 30, 2003. The attachment is

a true copy of a draft of the subject application. Exhibits A and B describe the systems and methods disclosed and claimed in the above identified patent application.

4. On April 1, 2003, I received a copy of the draft of the subject application included in Exhibit B as evidenced by Exhibit C attached to this declaration. Exhibit C is a true copy of an email exchange between me and Mr. Hicks.

5. During the period extending from just prior to April 1, 2003 to June 10, 2003, I reviewed the draft of the above identified patent application and marked it up as evidenced by Exhibits C and D attached to this declaration. Exhibit C is a true copy of an email exchange between Mr. Hicks and Mr. Roberts. As I indicate in Exhibit C, I completed my review of the draft on or about June 10, 2003.

6. During this same period, April through June 2003, I was very busy working on the user interface for a new product release of MDEA television and released three (3) versions of the user interface specification.

7. Prior to July 10, 2003, a new draft of the above identified application was prepared, which I reviewed prior to July 21, 2003 as evidenced by Exhibits E and F attached to this declaration. Exhibit E is a true copy of an email from Mr. Roberts to me and Exhibit F is a true of an email exchange between Mr. Roberts and me.

8. During the period of June 28, 2003 through July 13, 2003, I was away from work on vacation.

9. On August 1, 2003, I sent Mr. Roberts comments regarding a draft of the above identified application, as evidenced by Exhibit G, which is true copy of an email I sent to Mr. Roberts.

10. During August, 2003, Mr. Roberts revised the application, which we then finalized on August 28, 2003, which is evidenced by Exhibit H, which is true copy of an

email exchange between Mr. Roberts and me that includes a draft of the above identified application as an attachment.

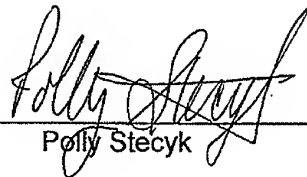
11. On or about September 5, 2003, Mr. Roberts sent to Mr. Hicks a copy of the subject application along with a declaration for my signature as evidenced by Exhibit I, which is true copy of a letter from Mr. Roberts to Mr. Hicks.

12. On September 9, 2003, I signed and dated the declaration as evidenced by Exhibit I, which is true copy of my executed declaration.

13. I further declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereunder.

Dated: _____

9/30/09


Polly Stecyk

Mitsubishi Digital Electronics America, Inc.

EXHIBIT A

Confidential Document

Invention Disclosure Form

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Date:		Date Received:	
Invention Title:	Passive Enforcement Method for Media Ratings	File Number:	
Inventor's Name(s):	Polly Stecyk	IP Representative:	<i>7/2/94</i>
Number of Attachments:		Shaded areas for IP Representative Use only.	

Instructions: You may type in the spaces provided or print out the form and fill in by hand. If additional space is needed for any item please include additional sheets, number the item, put a date and your name on each sheet, and attach it. Then note the number of attached sheets above.

1) When and Where did you conceive this invention?	Polly Stecyk developed this idea during discussions with MERL.
2) Why is this invention useful? (Does it make something better, cheaper, add a new feature, improve performance or solve a problem?)	The present invention provides a passive method to enforce ratings established by Television Networks, Movie Rating Committees, World Wide Web Service Providers or other similar media groups.
3) Can you estimate a commercial dollar value for this idea?	It is unknown what potential value the feature may have. However, due to public and governmental concern about some media programs watched by minors, the present invention may become significantly important.
4) Provide a brief summary of the invention (technical abstract) including key technical achievements.	The cost of facial recognition equipment and software is continuously dropping. As such, it is within the means of many homes to provide a passive way to control the type of media viewed by family members. The present invention uses facial recognition software, that is a camera coupled to a computer, to capture facial images of all persons within viewing distance of the media hardware (e.g. television, video monitor, movie screen, etc.). Whenever a face is recognized, the computer searches its database to determine the highest media rating allowed for that individual. If the current program exceeds that rating, then the computer will blank the display until that individual vacates the immediate area (i.e. the computer no longer scans the face of the offended person.)

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Confidential Document

Invention Disclosure Form

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5) Provide a detailed Description of the Invention:

Guidelines: If it is a circuit, give the components, method of operation, and results. If it is a system, give the components, their function, and overall system results. If it is software, give the inputs, sequence of operations, and the results. If it is an article, such as a unique bracket, give the details of its structure and its use. If it is a process give the conditions necessary for the process, the steps of the process, and the results of the process.

In the preferred embodiment, the present invention consists of a digital camera connected to a dedicated computer. This digital camera has the ability to continuously scan the entire room. The computer contains facial recognition software. Prior to system implementation, the program requires that all members of the family are photographed by the system from several different angles. In this way, digital facial features will correspond to a name, age, and a rating established by the head of household or other authorized individual.

An interface is then established between the media hardware and the facial recognition system. The interface sends to the computer the current rating of the media event. Subsequently, this interface also has the ability to turn off or "kill" the display whenever the media event rating exceeds the highest permissible rating for any individual within the viewing area.

Some situations where this passive media enforcement method may be used include, but are not limited to:

- A) Television Broadcasts. Although the current V-Chip method provides one way to enforce broadcaster ratings, this method is active in that an "older viewer" must continuously enter a passcode whenever the rating exceeds that level preselected by the "head of household." Often the system is confusing, and since it requires extra effort by the user, it is frequently not used.
- B) Computer Monitor. The World Wide Web contains material considered objectionable by many members of society. Although there are software programs to enforce Web Ratings, these systems are active in that one member of the household must set up the program with a passcode, remember the passcode, etc. Since it is active, the previous user must remember to "re-enable the program each time." It would be far easier if the computer had the ability to recognize the face in front of the camera, thereby making a passive control possible.
- C) Movie Ratings. Concerned parents could register their minor's picture and age with a Movie Theater chain. Then, whenever the child tried to purchase a ticket to movie, the rating could be compared with the age. In this way, the system could securely supplement manually checking IDs (which can easily be falsified.)

Situations requiring intervention by head of household.

- 1) If a person enters the room who has not been registered, the system administrator (an adult) must predetermine action between options. First, the system can be set up to disregard a face not recognized. Or, disregard if the system administrator is in the room (parental supervision). Another possibility is that a "General Public" rating is enforced whenever an "unrecognized face" is scanned.
- 2) In case an individual intentionally covers or tries to disguise his or her face to avoid detection, the system may enforce a "General Public" rating. However, since the system continuously scans faces, eventually the true ID of the person will likely be determined. Nevertheless, the system can be set up to maintain a digital copy of the unrecognized face, for later display to the system administrator.

In a particularly innovative aspect of the present invention, the computer system may keep track of viewing time by household members. In addition, this system can be used by Media Rating Agencies to record programs watched, ages of individuals watching the program, preferences of each user, etc. Of course, such activity would require the permission of the viewers.

EXHIBIT B

Roberts, Kenneth S.

From: Roberts, Kenneth S.
Sent: Sunday, March 30, 2003 1:54 PM
To: Jim Hicks (E-mail)
Subject: Application: Passive Enforcement Method for Media Ratings

Attachments: DOCSOC1-#133791-v2-MDEA_- _53
_- _Spec_for_Passive_Enforcement_Method_for_Media_Ratings.DOC

Jim - Attached is an application for Polly's passive enforcement system. The attached application does not include Figs. 1 and 2, which are prior art v-chip system and signal drawings, and Fig. 6 which is a drawing of a TV remote. Please have Polly review and provide me with her comments asap.
Best regards, Ken

Kenneth S. Roberts

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DOCSOC1-#1337
-v2-MDEA_- _53_-

DESCRIPTION

PASSIVE ENFORCEMENT METHOD FOR MEDIA RATINGS

Field of the Invention

[0001] 5 This invention relates to the field of consumer electronics devices, and more particularly to methods and systems for limiting personal exposure to a television system or other consumer electronics device through passive enforcement of media ratings.

Background

[0002] 10 There has been long-standing concern on the part of parents or guardians as to the content of programs and other media viewed by children and minors. This concern has been long-standing with respect to television broadcasts, and more recently, with respect to on-line services such as those provided through service providers or through other electronic means of text and image-based communication.

[0003] 15 Various attempts have been made to limit access by children to subject matter that is deemed inappropriate. Certain locks simply block specific channels, where those channels are either known to or are suspected to carry programming which is deemed unacceptable for viewing by children. Other systems incorporate time-based limitations, for example, where the entire television may not be used during certain hours. Typically, the set time limits would
20 preclude operation of the system during "bedtime" hours or at times when parental supervision does not exist, e.g., after school hours. Yet other lock systems serve to make the entirety of the system unavailable other than to authorized users.

[0004] Various attempts have been made to provide more-refined lock systems. One attempt, the so-called "V-chip" system, utilizes a coding system indicative of content. For example, a given
25 show may be designated as including adult language, violence or nudity. These indicators are often provided by single letter designators, such as L, V and N, respectively. Other coding systems analogous to movie rating codes, such as G for general audience, PG for parental guidance, R for restricted, etc., may also serve as a censor-based assessment of the content. These content-based designators are carried in television systems over the extended data service
30 (XDS or EDS) system. The adopted standard for NTSC television is the EIA-608 standard.

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Information which is typically carried in such systems includes the network name, show title, and brief description of the contents of the show. There are currently proposals to include rating information of the type previously mentioned in the XDS data.

[0005] Fig. 1 shows a typical format of EIA-608 standards as a function of time. Initially, a horizontal sync pulse 10 initiates a pulse train. A color burst pulse 12 follows the horizontal sync pulse, and is typically provided for all line scans. Next, a clock run-in-signal 14 serves as a synchronizing signal. A sequence of start bits 16, labeled S1, S2 and S3 follow. As depicted, the pulse train here is shown with pulse S3 being "high" and S1 and S2 being "low." In the extended data service system, various characters are then provided. Character one 18 is composed of bits 10 (labeled B0, B1, B2, B3, B4, B5 and B6) and a parity check bit 22 (labeled P1). Character two 24 is composed of bits (labeled B0, B1, B2, B3, B4, B5, B6 and B7) and a parity check bit 26 (labeled P2) for the byte of character two 24. Typically, the XDS data is carried on a line, which is not visible on the television display, such as line 21.

[0006] Fig. 2 shows a schematic drawing of the prior art V-chip system. A television or other display 30 is the ultimate recipient of display information. Initially, some source of information such as a television signal 32 is supplied from any number of sources, such as over-the-air transmission, cable or other recorded source. Channel selector 34 controls the tuner 36 to select the desired information from television signal 32. The output of tuner 36 is an audio/video signal 38 corresponding to the channel selected. A data slicer 40 is coupled to the output of the tuner 36. The data slicer 40 functions to monitor the XDS signal as carried in the audio/video signal 38. The data slicer 40 may either strip the XDS signal from the audio/video signal 38 or simply duplicate the XDS signal. With the V-chip system, the XDS data obtained by the data slicer 40 is program rating information. The program rating information is supplied from the data slicer 40 to the comparator 42. A list 44 of prohibited ratings is stored or provided. Typically, the system would identify all prohibited ratings by level, such as R and X, though a system could utilize logic to prohibit any rating at a given level or above (the convention above meaning more mature or more likely to be prohibited). In the event of coincidence between the output of the data slicer 40 comprising the rating data of the program and the list of prohibited ratings 44, the comparator 42 provides a blocking signal 46 to signal blocking mechanism 48.

The signal blocking mechanism 48 functions as a switch, blocking or otherwise scrambling audio/video signal 38, such that the show having the prohibited rating is not displayed.

[0007] Such systems are considered active systems in that a system administrator (or parent) must continuously enable/disable the system with the use of digital codes. This requires the parent to continuously disable the V-chip system during adult viewing and enable the V-chip system during child viewing. This can become quite tedious, and more importantly, leaves open the possibility that the parent may forget to enable the V-chip system when adult viewing has ended.

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Summary of the Invention

[0008] This present invention comprises novel methods, apparatuses and systems for supervising personal exposure to a consumer electronics device, such as, e.g., a television system, by reviewing programs for a selected content threshold in regard to particular viewers and, in the alternative, not reviewing programs for selected content threshold in regard to particular viewers during a finite time period.

[0009] In a preferred method of the present invention, a program signal is received by a consumer electronics device having a facial recognition system and an enforcement or intervention mechanism such as "V-chip" circuitry. The program signal, without intervention, is transformed into user discernible information for exhibition to a user. In the case of a television system, the user discernible information may represent itself as a picture and sound. In addition to the program signal, one or more viewer indicators and one or more content-based indicators are received. The viewer indicators, which are received from the facial recognition system, are indicative of the viewers present in the viewing area associated with to the consumer electronics device and scanned by the facial recognition system's camera. The content-based indicators, such as, e.g., a television or movie rating or a subject matter category, are indicative of the content of the user discernible information and can be carried by the program signal itself, or they can originate from some other source. One or more viewer specifications can be selected and one or more content-based specifications, such as, e.g., a rating or subject matter category, associated with each of the viewer specifications can then be selected to create viewing profiles

for selected viewers. Either the user or the manufacturer can effect selection by programming the viewer specifications and associated content-based specifications into the "V-chip" circuitry. [0010] Each of the viewer indicators are compared to the selected viewer specifications to determine which viewing profiles are active. Each of the received content-based indicators is
5 then compared to the selected content-based specifications of the active viewing profiles. In response to the comparison, a control signal is generated, which either causes the program signal to be impaired (block control signal), for instance by means of blocking or scrambling, or unimpaired (pass control signal). In the case of a television system, one or more of the video, audio, or closed captioning aspects of the program signal can be impaired. The block control
10 signal can be generated if a received content-based indicator exceeds (if rating) or matches (if categorical) a selected content-based indicator. The pass control signal can be generated if none of the received content-based indicators exceeds (if rating) or matches (if categorical) selected content-based specifications.

[0011] In a preferred embodiment of the present invention, a consumer electronics device
15 includes a facial recognition system comprising a computer or CPU running facial recognition software and a camera coupled to the CPU to continuously scan the associated viewing area, and "V-chip" circuitry comprising a logic unit, non-volatile memory and a signal impairing mechanism. The "V-chip" circuitry can be utilized in a television system, a video cassette recorder, audio equipment, or any consumer electronics device whereby user discernible
20 information can be generated. The "V-chip" circuitry allows the consumer electronics device to transform a program signal into user discernible information if the program signal meets certain content based criteria associated with a viewer, and prevents the consumer electronics device from transforming the program signal into user discernible information if the program signal does not meet certain content and viewer based criteria.

[0012] 25 In this regard, the logic unit is coupled to non-volatile memory and is configured for performing the following upon execution of instructions stored within the non-volatile memory. The logic unit receives one or more viewer indicators from a facial recognition system and one or more content-based indicators, which, if carried by the program signal, can be extracted or copied by a data extraction device, such as, e.g., a data slicer. The logic unit also receives one or
30 more viewer specifications and associated content-based specifications, which have been

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selected by either the user or the manufacturer and stored in the non-volatile memory. The logic unit compares the viewer indicators with the viewer specifications to identify the active viewing profile(s) and then compares the received content-based indicators with selected content-based specifications when the viewer indicators fall within any of the viewer specifications. The logic
5 unit then generates either a pass control signal or a blocking control signal based on these comparisons.

[0013] The signal impairing device receives the program signal and is configured for either passing the program signal therethrough without substantial impairment or passing the program signal therethrough with substantial impairment. The signal impairing device is coupled to the
10 logic unit for receiving the control signals therefrom. Upon receipt of the block control signal, the signal impairing device blocks or scrambles the program signal. Upon receipt of the pass control signal, the signal impairing device passes the program signal through without substantial impairment.

[0014] In an alternate embodiment of the present invention, a program signal is received by a
15 consumer electronics device, which without intervention would be transformed into user discernible information for exhibition to a user. In addition to the program signal, one or more viewer indicators and one or more content-based indicators are received. Timing information, such as, e.g., the current time, is also received. The content-based indicators and timing information can be carried by the program signal itself, or they can originate from some other
20 source. One or more viewer and finite time range specifications can be selected and one or more content-based specifications associated with each of the viewer and time range specifications can then be selected to create viewing profiles for selected viewers. Either the user or the manufacturer can effect selection by programming the viewer specification and associated content-based specification and finite time range specifications into the "V-chip" circuitry.

[0015] 25 Other and further objects, features, aspects, and advantages of the present invention will become better understood with the following detailed description of the accompanying drawings.

Brief Description of the Drawings

[0016] The drawings illustrate both the design and utility of preferred embodiments of the
30 present invention, in which:

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[0017] Fig. 1 shows the prior art EIA-608 standards, depicting a typical signal as a function of time;

[0018] Fig. 2 is a schematic drawing of the prior art "V-chip" system;

[0019] Fig. 3A is a schematic drawing of a preferred embodiment of a passive enforcement
5 system constructed in accordance with the present invention;

[0020] Fig. 3B is a schematic drawing of an alternate embodiment of a passive enforcement system constructed in accordance with the present invention;

[0021] Fig. 4A is a flowchart showing a preferred method of selecting blocking or passing a program signal performed in the system of Fig. 3A;

[0022] 10 Fig. 4B is a flowchart showing a preferred method of selecting blocking or passing a program signal performed in the system of Fig. 3B;

[0023] Fig. 5A is a menu system that allows a user to program the system of Fig. 3A with viewer specifications and associated content-based specifications.

[0024] Fig. 5B is a menu system that allows a user to program the system of Fig. 3B with viewer
15 specifications and associated content-based and finite time range specifications;

[0025] Fig. 6 is a detailed depiction of a remote control unit used in conjunction with the menu systems of Fig. 5A and 5B;

Detailed Description of the Preferred Embodiments

[0026] 20 The public has demanded that children be protected from questionable material on television, on the Internet, in movies, and in other media. However, because most blocking systems based on media ratings are active systems, an system administrator, such as the parent or other supervising adult, must continuously enable and disable the system with the use of digital codes. In contrast, the media rating enforcement system and method of the present invention is a
25 passive system that incorporates a facial recognition system. The facial recognition system includes facial recognition software running on a computer or another CPU that may be incorporated in the media device or system being viewed. Coupled to the computer or CPU is a digital video camera that continually scans the viewing area and captures facial images of all persons within viewing distance of the media device or system being viewed such as a television,
30 video monitor, movie screen, computer monitor, and the like. Whenever a face is recognized, a

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pre-established "viewing profile" for that individual contained in memory is examined by the enforcement system. If the rating of the current program exceeds the rating in the viewing profile, the system will block the program from view until that individual vacates the immediate viewing area such that the camera no longer scans the offending individual's face, even though

5 there may be others in the room who are actually mature enough to watch the program. The system, however, can be overridden with a parental lock code or pass-code. Alternatively, the system may be programmed to disregard the presence of an offending individual if the system administrator (parental supervision) is in the viewing area.

[0027] The system may also be used to monitor viewing habits of persons within a given
10 household. The system could store the names and/or faces of all of the individuals watching a program. Such information may be useful to parents interested in monitoring the viewing habits of their children, and in particular the content viewed and viewing time. In addition, this system may be used by Media Rating Agencies, with the permission of the viewers, to gather statistics on what programs are watched, age and gender of each viewer, preferences of each viewer, and
15 the like.

[0028] Turning to the figures, a detailed discussion of the media rating enforcement system and method of the present invention is provided. Fig. 3A shows a schematic representation of a consumer electronics system 100, and in particular a television system, constructed in accordance with a preferred embodiment of the present invention to include a passive media rating
20 enforcement system. It should be noted that the consumer electronics system 100 is not to be limited to a television system, but can include any type of system that receives information that a parent might find objectionable, such as, e.g., a video cassette recorder (VCR), audio equipment and computer equipment. In general, the consumer electronic device receives a content signal that provides content to a viewer/user in the form of audio/visual information. In regard to the television system 100, it receives a television program signal S_{TV25}
provides a program to a viewer in the form of audio/visual information. The television system 100 includes enforcement system circuitry 102, commonly referred to as the "V-chip", that can be programmed by a user, such as, e.g., a parent, to selectively limit exposure of any programs to children that the user feels contain inappropriate subject matter. In particular, the "V-chip" circuitry 102 can be programmed to block the program signal S_P 30

meets certain criteria selected by the user for a particular viewer present in the viewing area and identified by the facial recognition system 128.

[0029] In this connection, the television system 100 includes a tuner 104, which receives the television signal S_{TV} , and, under the control of a channel selector 106, provides a program signal S_P at an output. Typically, the television signal S_{TV} 5

when received via an antenna or directly from cable entering the premises. It is often the case, however, that the television signal S_{TV} received by the tuner 104 has been pre-tuned, for example, through a cable box or video cassette recorder (VCR) (both not shown). The television system 100 further includes an audio/visual output device 108, which transforms the program signal S_P 10 into the program in the form of a display on a display screen 110 and sound from speaker 112.

[0030] The "V-chip" circuitry 102 of the television system 100 includes a signal blocking mechanism 115, which is coupled to the output of the tuner 104 to receive the program signal S_P .

The signal blocking mechanism 115 is shown as a simple switch, but can be any mechanism that 15 allows a signal to be selectively passed and/or blocked. Depending on the state of a control signal received by the signal blocking mechanism 115, the program signal S_P is either blocked from passing or allowed to pass to the audio/video output device 108. In alternative embodiments, the "V-chip" circuitry 102 includes a signal impairment device such as a signal scrambler, which either scrambles the program signal S_P or passes the program signal S_P to the 20 audio/video output device 108 without impairment thereof.

[0031] In this particular embodiment, the program signal S_P not only includes information required to provide the program to the viewer, but also one or more content-based indicators C_1 . The content-based indicators C_1 are indicative of the content of the program, and preferably include a rating, such as, e.g., a television or movie rating, or a subject matter category, such as, 25 e.g., sex or violence. Presently, the Federal Communications Commission (FCC) dictates the following ratings and subject matter categories: television ratings shall include TV-Y, TV-Y7, TV-G, TV-PG, TV-14 and TV-MA; movie ratings shall include G, PG, PG-13, R, NC-17 and X; and the subject matter categories include FV (Fantasy Violence), D (Sexual Dialog), L (Adult Language), S (Sexual Situations) and V (Violence). It can be appreciated by those skilled in the 30 art that the present invention is not limited to the above-disclosed ratings and categories, but can

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encompass any content-based indicator C_1 that provides information allowing an individual to determine the content of a particular program received by the television system 100.

[0032] The content-based indicators C_1 are incorporated into the program signal S_P , preferably using an extended data service (XDS or EDS) system. It can be appreciated by those skilled in the art that the content-based indicators C_1 5

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independent from the program signal S_P . For instance, the content-based indicators C_1 can be supplied by the Program Status Information Protocol (PSIP) or an Electronic Program Guide (EPG). The "V-chip" circuitry 102 further includes a data extraction device 114, which is coupled to output of the tuner 104 to receive the program signal S_P . In this embodiment, the data extraction device 114 is a closed caption data slicer, which monitors the program signal S_P 10 obtains from it XDS information, namely, the content-based indicators C_1 .

[0033] A user entry system 116, typically embodied in a remote control unit 118 and a corresponding remote receiver 120, is the mechanism by which a user inputs one or more viewer specifications V_S and one or more content-based specifications C_S associated with the viewer specifications V_S to build and store viewing profiles. The one or more viewer specifications V_S 15 are indicative of the viewers likely to be identified by the facial recognition system in the viewing area and, like the viewer indicators V_I , comprises a viewer's name, age or the like. The content-based specifications C_S are indicative of the content of any program that the user wishes to limit on a viewer basis and, like the content-based indicators C_1 , the content-based specification C_S 20 can be selected from a variety of content ratings and subject matter categories. The "V-chip" circuitry 102 includes non-volatile memory 122, which is coupled to the program entry system 116 for receiving and storing the viewer specifications V_S and associated content-based specifications C_S as viewing profiles in a look-up list 124. Preferably, the non-volatile memory 122 is embodied in Flash Memory or an EEPROM.

[0034] 25 The "V-chip" circuitry 102 further includes a logic unit 126 to generate either a block control signal $CTRL_{BLOCK}$, which causes the signal blocking mechanism 115 to preclude the program signal S_P from being passed effectively to the audio/video output device 108, or a pass control signal $CTRL_{PASS}$, which permits the program signal S_P to be passed via the signal blocking mechanism 115 to the audio/video output device 108. In the preferred embodiment, the 30 logic unit 126 is preferably implemented as a microprocessor. While an integrated device is

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preferable, any analog or digital system, discrete or integrated, or combinations thereof may be utilized if the functionalities of the invention may be achieved. For expository convenience, the logic unit 126 will be identified as a comparator, though the label comparator is not intended to exclude other logic combinations or functionalities.

[0035] 5 The logic unit 126 is coupled to the output of the data slicer 114 to receive the extracted content-based indicators C_I , the non-volatile memory 122 to receive the viewer specifications V_S and associated content-based specifications C_S , and the facial recognition system 128 to receive viewer indicators V_I indicative of the viewers present in the viewing area. The logic unit 126 compares the viewer indicators V_I with the viewer specifications V_S to determine the active viewing profiles and the content-based indicators C_I with the content-based specifications C_S 10 the active viewing profiles, and then generates a control signal CTRL in response thereto, which either constitutes a block control signal CTRL_{BLOCK} or a pass control signal CTRL_{PASS}. The lowest or least mature content-based specifications C_S associated with a viewer in the viewing area preferably dictates which control signal CTRL, i.e., a block control signal CTRL_{BLOCK} or a pass control signal CTRL_{PASS} 15 , will be generated by the logic unit 126. coupled to a clocking signal generating clock 123, which allows the control signal CTRL to be periodically updated, preferably, during every frame of the program signal S_P (about every 16 ms). The control signal CTRL can, however, be updated less frequently, e.g., every second or every minute.

[0036] 20 The facial recognition system 128 includes a digital video camera 127 coupled to a dedicated computer or CPU 125, or, in the alternative, a CPU of the viewing device. The CPU 125 preferably runs facial recognition software known in the art while the camera 127 continuously scans the entire viewing area associated with the television system 100. The facial recognition system 128 further comprises nonvolatile memory 129 used for storage of image 25 libraries associated with individual viewers. Prior to implementation, all likely viewers, e.g., all members of a family, are photographed from several different angles by the system 128 using the digital video camera 127, or other digital camera from which the images can be downloaded into the memory 129 of the system 128. (see, e.g., the "VIEWER ENTRY" selection of the main menu 152 of the menu system 150 in Fig. 5A). When stored, the digital images comprising the 30 facial features of individual viewers are associated with an individual viewers name, age or the

like. When the facial features are recognized by the system 128, viewer indicators V_1 are sent to the logic unit 126 of the enforcement circuitry 102. When not recognized, the facial features may trigger the transmission of a default viewer indicator such as "Unknown" to the logic unit 126, or trigger the system to prompt the user to update the viewer image and profile databases. Because
5 facial features of selected viewers tend to change over time, the pre-implementation process of photographing selected viewers should be repeated on a periodic basis.

[0037] Referring to Fig. 4A, operation of the logic unit 126 is explained in further detail. At step 130, the control signal CTRL generated by the logic unit 126 either indicates BLOCK or PASS. When the control signal CTRL indicates BLOCK, the signal blocking mechanism 115 blocks the program signal S_p 10 from being sent to the audio/video output device 108. For the purpose of the present invention, it should be understood that blocking the program signal S_p entails blocking at least one of the video, audio and captioning aspects of the program signal S_p . Preferably, however, all three of these aspects are blocked, such that the picture, sound and captioning will not be output from the audio/video output device 108. When the control signal CTRL indicates a PASS, the signal blocking mechanism 115 sends the program signal S_p 15 to the audio/video output device 108, such that the picture, sound and captioning are output.

[0038] At step 132, the logic unit 126 waits for a time queue from the clock 123, and upon receipt of the time queue, the logic unit 126 determines, as follows, whether the "V-chip" circuitry 102 has been enabled while the facial recognition system 128, at step 133, scans the
20 viewing area. In particular, the logic unit 126 receives, at step 134, the current viewer indicator(s) V_1 obtained from the facial recognition system 128 and the content-based indicators C_1 obtained from the program signal S_p . The logic unit 126 then determines, at step 136, which viewing profiles are active by comparing the viewer indicator(s) V_1 with the viewer specifications V_s from the look up list 124. Alternatively, the logic unit 126 may ask when encountering a viewer indicator V_1 25 whether the user would like to update the system databases. If the system administrator is present, the system administrator could update the system by entering the menu system discussed in regard to Fig. 5A.

[0039] With the active viewing profiles identified, wherein a viewer specification V_s corresponding to the viewer indicator V_1 30 is selected, the logic unit 126

analyzes the content-based indicators C_I obtained from the program signal S_P vis-à-vis the content-based specifications C_S associated with the viewer specifications V_S . In the case of program ratings, if after comparing the content-based indicators C_I with the content-based specifications C_S it is found that any of the content-based indicator C_I ratings exceed any of the content-based specification C_S ratings (typically, there will be a maximum specification C_S ratings — a television rating and a movie rating), the logic unit 126, at step 140, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the "V—chip" circuitry 102 and blocking the program signal S_P to the audio/video output device 108. If the content-based indicators C_I ratings do not exceed the ratings of the content-based specifications C_S associated with the viewer specifications V_S , the logic unit 126 goes to step 144 where any of the subject matter categories of the content-based indicators C_I match any of the subject matter categories of the content-based specifications C_S associated with the viewer specifications V_S .

15 [0040] If after comparing the categories of the content-based indicators C_I with the categories of the content-based specifications C_S it is found that any of the content-based indicators C_I categories match any of the categories of the content-based specifications C_S associated with the viewer specifications V_S , the logic unit 126, at step 140, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the "V—chip" circuitry 102 and blocking the program signal S_P to the audio/video output device 108. If none of the categories of the content-based indicators C_I match any of the categories of the content-based specifications C_S , the logic unit 126, at step 138, generates a pass control signal $CTRL_{PASS}$, thereby disabling the "V—chip" circuitry 102 and passing the program signal S_P to the audio/video output device 108. The logic unit 126 then proceeds to step 130, where the analysis process is repeated. The logic unit 126 performs the aforementioned steps by executing 25 instructions that preferably take the form of computer software stored in the memory 122 or other suitable storage medium, such as, e.g., a ROM chip, or fixed logic, such as, e.g., an ASIC.

[0041] Of course, the television system 100 may be configured, such that the "V—chip" circuitry 102 may be enabled or disabled independently from the viewer specifications V_S , and, as discussed in detail below, time range specifications T_S . For instance, the "V—chip" circuitry 102 30 may be optionally operated in a standard analysis mode, whereby the "V—chip" circuitry 102 can

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be enabled to automatically analyze the content-based indicators C_1 vis-à-vis the content-based specifications C_5 without regard to the viewer or time range, or disabled to automatically to pass the program signal S_p to the audio/video output device 108.

[0042] Programming of the viewing profiles, i.e., the viewer specifications V_S and associated content-based specifications C_5 , into the "V-chip" circuitry 102, and in list 124 of the non-volatile memory 122, is preferably effected through the use of a menu system 150, shown in Fig. 5A. As depicted, the menu system 150 includes an array of menus, which includes a main menu 152, a "V-chip" password entry screen 154, a "V-chip" main menu 156, a viewer menu 157, a television ratings menu 158, a movie ratings menu 160, and a subject matter categories menu 162.

[0043] The user entry system 116, and in particular the remote control unit 118 (shown in detail in Fig. 6), is the operative device through which the user can interact with the menu system 150. The remote control unit 118 includes a menu key 166, adjust thumb disc 168, enter key 170 and numeric keys 172 to allow the user to input selected information via the menu system 150.

Depression of the menu key 166 displays the main menu 152 of the menu system 150 when the television system 100 is in a home state (i.e., normal operation of the television system 100). If the main menu 152 is displayed, subsequent depression of the menu key 166 returns the user back to the home state. If one of the submenus is displayed, depression of the menu key 166 displays the previous menu. The adjust thumb disc 168 allows the user to scroll up, down, left or right within the menu system 150 to select a particular menu item. Depression of the enter key 170 allows the user to enter a selected menu item into the non-volatile memory 122.

[0044] Within the main menu 152, the user may select the "V-chip Parent Lock" menu item, which takes the user to the "V-chip" password entry screen 154. A password, preferably known only by the parents, is entered via the numeric keys 172. If the correct password is entered, the user is taken to the "V-chip" main menu 156. If an incorrect password is entered, the user is not taken to the "V-chip" main menu 156, and the words "try again" are displayed. In the "V-chip" main menu 156, the user can select V-CHIP ON or V-CHIP OFF to alternately enable and disable the "V-chip" circuitry 102. If the user selects V-CHIP ON, the user can then select VIEWER LOCK ON or VIEWER LOCK OFF to alternately enable the "V-chip" circuitry 102 to analyze the program signal with regard to viewers, and disable the "V-chip" circuitry 102 to

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analyze the program signal without regard to viewers. With the V-CHIP ON, the user can turn the VIEWER LOCK on or off from the main menu 152 by selecting VIEWER LOCK and correctly entering the system pass-code. With the VIEWER LOCK off, the system preferably defaults to a "PUBLIC" viewer specification V_S and associated content-based specifications C_S 5 as the active viewing profile (see Fig. 3A).

[0045] The "V-chip" main menu 156 can also be used to select the type of content-based specification C_S to be entered into the look-up list 124 and associated with a viewer specification V_S to establish a viewing profile for a selected viewer. That is, the user can select TV RATINGS, MOVIE RATINGS, or CATEGORIES, to take the user respectively to the television 10 ratings menu 158, movie ratings menu 160, or subject matter categories menu 162. Preferably, the menu system 150 requires the user to first select a viewer specification V_S from the viewer menu 157, and then a content-based specification C_S associated with the selected viewer specification V_S . However, it should be appreciated that the menu system 150 can be configured to require selection of the content-based specification C_S followed by selection of the viewer specification V_S 15 without straying from the principles taught by this invention.

[0046] Within the television ratings menu 158, the user can select a particular movie rating, which prevents any program exceeding the selected television rating from being output from the audio/video output device 108. The television ratings can be selected from the following: OFF, TV-Y, TV-Y7, TV-G, TV-PG, TV-14 and TV-MA. A selection of OFF removes the previously selected content-based specification C_S 20

viewer specification V_S from the look-up list 124. A selection of any of the television ratings stores the selected television rating, as a content-based specification C_S associated with the selected viewer specification V_S , in the look-up list 124. Since a selection of a particular rating is effectively also a selection of all ratings below the selected rating, a selection of TV-MA is 25 effectively the same as selecting OFF. As will be described in further detail below, however, selection of TV-MA affects the selection of the subject matter categories.

[0047] Within the movie ratings menu 160, the user can select a particular movie rating, which prevents any program exceeding the selected movie rating from being output from the audio/video output device 108. The movie ratings can be selected from the following: OFF, G, 30 PG, PG-13, R, NC-17 and X. A selection of OFF removes the previously selected content-

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based specification C_S movie rating corresponding to the selected viewer specification from the look-up list 124. A selection of any of the movie ratings stores the selected movie rating, as a content-based specification C_S associated with the selected viewer specification V_S , in the look-up list 124. Selection of X is effectively the same as selecting OFF.

[0048] 5 Within the subject matter categories menu 162, the user can select either to allow or block any program from being sent to the audio/video output device 108 when the program contains subject matter falling within the selected subject matter category. The subject matter categories can be selected from the following: FV (Fantasy Violence), D (Sexual Dialog), L (Adult Language), S (Sexual Situations), V (Violence) and Non-Rated Programs. A selection to allow a particular category, removes the content-based specification C_S 10 category associated with the selected viewer specification V_S from the look-up list 124. Conversely, a selection to block a particular category stores the selected category, as a content-based specification C_S associated with the selected viewer specification V_S , in the look-up list 124.

[0049] 15 As currently dictated by the FCC, certain subject matter categories can be selected only if certain television ratings have been selected. For instance, category FV can only be selected if TV-Y7 has been selected. Category D can only be selected if TV-PG or TV-14 has been selected. Categories L, S and V can only be selected if TV-PG, TV-14 or TV-MA has been selected. Thus, the selection of categories enhances the television rating selected by the user.

20 For instance, if television rating TV-14 and category S is selectively allowed, then all programs rated TV-MA are blocked and all programs containing sexual situations are blocked. Thus, the discretionary aspect of a selected television rating can be supplemented by further selecting a subject matter category. In this case, the following combinatory content-based specifications C_S can be created: TV-Y7 FV, TV-PG D, TV-PG L, TV-PG S, TV-PG V, TV-14 D, TV-14 L,
25 TV-14 S, TV-14 V, TV-MA L, TV-MA S and TV-MA V. Some programs, such as, e.g., news and sports, are not rated or are un-rated. In this case, the user can select to allow all non-rated programs or block all non-rated programs. If the TV rating is OFF, non-rated programs cannot be selected.

[0050] Turning to the figures 3B, 4B and 5B, a detailed discussion of an alternate embodiment of
30 the media rating enforcement system and method of the present invention is provided. Fig. 3B

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shows a schematic representation of a consumer electronics system 200 that is substantially the same as the consumer electronics system 100 shown in Fig. 3A with the exception of the inclusion of time range specifications T_s listed in the look up list 224 of the non-volatile memory 222. As with the consumer electronics system 100 shown in Fig. 3A, the consumer electronics system 200 is not to be limited to a television system, but can include any type of system that receives information that a parent might find objectionable, such as, e.g., a video cassette recorder (VCR), audio equipment and computer equipment. In general, the television system 200 receives a television program signal S_{TV} , and absent intervention, provides a program to a viewer in the form of audio/visual information. The television system 200 includes "V-chip" circuitry 202 that can be programmed by a user, such as, e.g., a parent, to selectively limit exposure of any programs to children that the user feels contain inappropriate subject matter. In particular, the "V-chip" circuitry 202 can be programmed to block the program signal S_P if the content and time of the program meet certain criteria selected by the user for a particular viewer present in the viewing area and identified by a facial recognition 228.

[0051] 15 In this connection, the television system 200 includes a tuner 204, which receives the television signal S_{TV} , and, under the control of a channel selector 206, provides a program signal S_P at an output. The television system 200 further includes an audio/visual output device 208, which transforms the program signal S_P into the program in the form of a display on a display screen 210 and sound from a speaker 212.

[0052] 20 The "V-chip" circuitry 202 of the television system 200 includes a signal blocking mechanism 215, which is coupled to the output of the tuner 204 to receive the program signal S_P and to selectively pass and block the program signal S_P , or, in the alternative, pass and scramble the program signal S_P . In this particular embodiment, the program signal S_P not only includes information required to provide the program to the viewer and one or more content-based indicators C_i , but also timing information T_i . The timing information T_i 25 time, such as, e.g., the current time.

[0053] The content-based indicators C_i and timing information T_i are incorporated into the program signal S_P , preferably using an extended data service (XDS or EDS) system. It can be appreciated by those skilled in the art that the content-based indicators C_i and timing information T_i can originate from any source dependent or independent from the program signal S_P 30

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instance, the content-based indicators C_1 and timing information T_1 can be supplied by the Program Status Information Protocol (PSIP) or an Electronic Program Guide (EPG). The timing information T_1 can also originate from within the television system 200 via a user setting. The "V-chip" circuitry 202 further includes a data extraction device 214, which is coupled to output of the tuner 204 to receive the program signal S_P 5

and of

the content-based indicators C_1 and the timing information T_1 .

[0054] A user entry system 216, typically embodied in a remote control unit 218 and a corresponding remote receiver 220, is the mechanism by which a user inputs one or more viewer specifications V_S , one or more finite time range specifications T_S and one or more content-based specifications C_S associated with the viewer specifications V_S 10

T_S . The finite time range specifications T_S are the time ranges during which the user wishes to limit the content of any program in relation to a particular viewer. The "V-chip" circuitry 202 includes non-volatile memory 222, which is coupled to the program entry system 216 for receiving and storing the viewer specifications V_S and associated content-based specifications C_S and finite time range specifications T_S 15

as viewing profiles in a loc

non-volatile memory 222 is embodied in Flash Memory or an EEPROM.

[0055] The "V-chip" circuitry 202 further includes a logic unit 226 to generate either a block control signal $CTRL_{BLOCK}$, which causes the signal blocking mechanism 215 to preclude the program signal S_P from being passed effectively to the audio/video output device 208, or a pass control signal $CTRL_{PASS}$, which permits the program signal S_P 20

blocking mechanism 215 to the audio/video output device 208. The logic unit 226 is coupled to the output of the data slicer 214 to receive the extracted content-based indicators C_1 and the current time T_1 , the non-volatile memory 222 to receive the viewer specifications V_S , finite time range specifications T_S and associated content-based specifications C_S and the facial recognition system 228 to receive viewer indicators V_I 25

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The logic unit 226 compares the viewer indicators V_I with the viewer specifications V_S to determine the active viewing profiles, the current time T_1 falls with the associated finite time range specifications T_S of the active viewing profiles to determine the active finite time range specifications T_S , then the content-based indicators C_1 with the content-based specifications C_S of the active viewing profile associated with the active time range specifications T_S 30

generates a control signal CTRL in response thereto, which either constitutes a block control signal CTRL_{BLOCK} or a pass control signal CTRL_{PASS}. The logic unit 226 is coupled to a clocking signal clock, which allows the control signal CTRL to be periodically updated.

[0056] The facial recognition system 228 includes a digital video camera 227 coupled to a
5 dedicated computer or CPU 225, or, in the alternative, a CPU of the viewing device. The CPU 225 preferably runs facial recognition software known in the art while the camera 227 continuously scans the entire viewing area associated with the television system 200. The facial recognition system 228 further comprises nonvolatile memory 229 used for storage of image libraries associated with individual viewers. Prior to implementation, all likely viewers, e.g., all
10 members of a family, are photographed from several different angles by the system 228 using the digital video camera 227, or other digital camera from which the images can be downloaded into the memory 229 of the system 228. When stored, the digital images comprising the facial features of individual viewers are associated with an individual viewers name, age or the like. When the facial features are recognized by the system 228, viewer indicators V_I are sent to the
15 logic unit 226 of the enforcement circuitry 202. When not recognized, the facial features may trigger the transmission of a "default" viewer indicator such as "UNKNOWN" to the logic unit 226, or trigger the system to prompt the user to update the viewer image and profile databases. Because facial features of selected viewers tend to change over time, the pre-implementation process of photographing selected viewers should be repeated on a periodic basis.

[0057] 20 Referring to Fig. 4B, operation of the logic unit 226 is explained in further detail. At step 230, the control signal CTRL generated by the logic unit 226 either indicates BLOCK or PASS. At step 232, the logic unit 226 waits for a time queue from the clock signal clock 223, and upon receipt of the time queue, the logic unit 226 determines, as follows, whether the "V-chip" circuitry 202 has been enabled while the facial recognition system 228, at step 233, scans the
25 viewing area. In particular, the logic unit 226 receives, at step 234, the current viewer indicator(s) V_I obtained from the facial recognition system 228 at step 233, the viewer specifications V_S obtained from the look-up list 224, the current time T_I obtained from the program signal S_P and the current content-based indicator C_I obtained from the program signal S_P. The logic unit 226 then determines, at step 236, which viewing profiles are active by comparing the viewer indicator(s) V_I with the viewer specifications V_S

[0058] With the active viewing profiles identified, wherein a viewer specification V_S corresponding to the viewer indicator V_I is selected, the logic unit 226 then determines, at step 237, which time range specifications T_S are active by comparing the current time T_I with any of the selected time range specifications T_S . Dependent on whether the current time T_I does or does not fall within any of the selected time range specifications T_S

analyzes the content-based indicators C_I obtained from the program signal S_P vis-à-vis default content-based specifications C_S associated with the viewer specifications V_S for all times not within selected finite time range specifications T_S or vis-à-vis content-based specifications C_S associated with the viewer specifications V_S and selected time range specifications T_S . In the case of program ratings, if after comparing the content-based indicator C_I

specification C_S it is determined that any of the content-based indicators C_I ratings are determined to exceed any of the content-based specification C_S ratings (typically, there will be a maximum of two content-based specification C_S ratings — a television rating and a movie rating), the logic unit 226, at step 240, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the “V—chip” circuitry 202 and blocking the program signal S_P

15 output device 208. If the ratings of the content-based indicators C_I do not exceed the any of the ratings of the default content-based specifications C_S associated with the viewer specifications V_S and do not exceed any of the content-based specifications C_S associated with the viewer specifications V_S and selected time range specifications T_S , the logic unit 226 goes to step 244 where it analyzes whether any of the content-based indicators C_I

20 content-based specifications C_S associated with the viewer specifications V_S and match any of the content-based specifications C_S associated with the viewer specifications V_S and determined time range specifications T_S .

[0059] If after comparing the content-based indicators C_I with the content-based specifications C_S it is determined that any of the ratings of the content-based indicators C_I

25 default content-based specifications C_S associated with the viewer specifications V_S or match any of the ratings of the content-based specifications C_S associated with the viewer specifications V_S and determined time range specifications T_S , the logic unit 226, at step 240, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the “V—chip” circuitry 202 and blocking the program signal S_P

30 to the audio/video output device 208. If none of the content-based

C_1 match any of the default content-based specifications C_S associated with the viewer specifications V_S or match any of the content-based specifications C_S associated with the viewer specifications V_S and determined time range specifications T_S , the logic unit 226, at step 238, generates a pass control signal $CTRL_{PASS}$, thereby disabling the "V-chip" circuitry 202 and passing the program signal S_P to the audio/video output device 208. The process then proceeds to step 230, where the analysis process is repeated. However, it should be appreciated that the system 202 could be configured such that the logic unit 226, at step 238, generates a pass control signal $CTRL_{PASS}$, thereby disabling the "V-chip" circuitry 202 and passing the program signal S_P to the audio/video output device 208 when the logic unit 126, at step 242, determines that content-based indicators C_1 do not exceed any of the content-based specifications C_S without straying from the principles taught by this invention.

[0060] Programming of the viewing profiles, i.e., the viewer specifications V_S and associated content-based specifications C_S and finite time range specifications T_S into the "V-chip" circuitry 202, and in particular the look-up list 224 of the non-volatile memory 222, is preferably effected through the use of a menu system 250, shown in Fig. 5B. As depicted, the menu system 250 includes an array of menus, which includes a main menu 252, a "V-chip" password entry screen 254, a "V-chip" main menu 256, a viewer menu 257, a television ratings menu 258, a movie ratings menu 260, a subject matter categories menu 262 and a time range menu 264.

[0061] The user entry system 216, and in particular the remote control unit 218 (shown in detail in Fig. 6), is the operative device through which the user can interact with the menu system 250. Within the main menu 252, the user may select the "V-chip Parent Lock" menu item, which takes the user to the "V-chip" password entry screen 254. A password, preferably known only by the parents, is entered via the numeric keys 272. If the correct password is entered, the user is taken to the "V-chip" main menu 256. If an incorrect password is entered, the user is not taken to the "V-chip" main menu 256, and the words "try again" are displayed. In the "V-chip" main menu 256, the user can select V-CHIP ON or V-CHIP OFF to alternately enable and disable the "V-chip" circuitry 202. If the user selects V-CHIP ON, the user can then select VIEWER LOCK ON or VIEWER LOCK OFF to alternately enable the "V-chip" circuitry 202 to analyze the program signal with regard to viewers, and disable the "V-chip" circuitry 202 to analyze the program signal without regard to viewers. The user can also then select TIME LOCK ON or

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TIME LOCK OFF to alternately enable the "V-chip" circuitry 202 to further analyze the program signal with regard to time, and disable the "V-chip" circuitry 202 to analyze the program signal without regard to time. With the V-CHIP ON, the user can turn the VIEWER LOCK and TIME LOCK on or off from the main menu 252 by selecting VIEWER LOCK or TIME LOCK and
5 correctly entering the system pass-code. With the VIEWER LOCK off, the system preferably defaults to a "PUBLIC" viewer specification V_S and associated content-based specifications C_S as the active viewing profile. With the TIME LOCK off, the system preferably defaults to a "DEFAULT" time range specification T_S and associated content-based specifications C_S as the active viewing profile for each viewer (see Fig. 3B).

[0062] 10 The "V-chip" main menu 256 can also be used to select the type of content-based specification C_S to be entered into the look-up list 224 and associated with selected viewer specification V_S and time range specifications T_S to establish viewing profiles for selected viewers. That is, the user can select TV RATINGS, MOVIE RATINGS, or CATEGORIES, to take the user respectively to the television ratings menu 258, movie ratings menu 260, or subject
15 matter categories menu 262. Preferably, the menu system 250 requires the user to first select a viewer specification V_S from the viewer menu 257, and then content-based specification C_S associated with the selected viewer specification V_S and time range specifications T_S from the time range menu 264 associated with the selected content-based specification C_S and viewer specification V_S from the time range menu 264. However, it should be appreciated that the
20 menu system 250 can be configured to require selection of the time range specification T_S followed by selection of the content-based specification C_S and viewer specification V_S without straying from the principles taught by this invention.

[0063] Within the television ratings menu 258, the user can select a particular movie rating, which prevents any program exceeding or, in the alternative, matching or exceeding, the selected
25 television rating from being output from the audio/video output device 208. The television ratings can be selected from the following: OFF, TV-Y, TV-Y7, TV-G, TV-PG, TV-14 and TV-MA. A selection of OFF removes the previously selected content-based specification C_S television rating and time range(s) corresponding to the selected viewer specification V_S from the look-up list 224. A selection of any of the television ratings stores the selected television rating, as a content-based specification C_S
30 , in the look-up list 224. Since

rating is effectively also a selection of all ratings below the selected rating, a selection of TV-MA is effectively the same as selecting OFF. As will be described in further detail below, however, selection of TV-MA affects the selection of the subject matter categories.

[0064] Within the movie ratings menu 260, the user can select a particular television rating, 5 which prevents any program exceeding or, in the alternative, matching or exceeding, the selected movie rating from being output from the audio/video output device 208. The movie ratings can be selected from the following: OFF, G, PG, PG-13, R, NC-17 and X. A selection of OFF removes the previously selected content-based specification C_S movie rating and time range(s) corresponding to the selected viewer specification V_S from the look-up list 224. A selection of any of the movie ratings stores the selected movie rating, as a content-based specification C_S 10 the look-up list 224. Selection of X is effectively the same as selecting OFF.

[0065] Within the subject matter categories menu 262, the user can select either to allow or block any program from being sent to the audio/video output device 208 when the program contains subject matter falling within the selected subject matter category. The subject matter 15 categories can be selected from the following: FV (Fantasy Violence), D (Sexual Dialog), L (Adult Language), S (Sexual Situations), V (Violence) and Non-Rated Programs. A selection to allow a particular category, removes the content-based specification C_S corresponding to that category from the look-up list 224. Conversely, a selection to block a particular category stores the selected category, as a content-based specification C_S , in the look-up list 224.

[0066] After a particular content-based specification C_S 20 time range menu 264 wherein the user can define one or more time range specifications T_S to be associated with the selected content-based specification C_S . The time range specification T_S can be defined by entering a time into the START TIME entry and entering a time into the STOP TIME entry. The defined time range specification T_S is then entered in the look-up list 224.

25 Another time range specification T_S associated with the selected content-based specification C_S can be defined by again entering times into the START TIME and STOP TIME entries. Preferably, the time range specification T_S defined can be applied to each work day of the week (M-F) or to the weekends. This can be accomplished by selecting either the WEEKDAY (M-F) or the WEEKEND (S-S) after selection of the time range.

[0067] While preferred methods and embodiments have been shown and described, it will be apparent to one of ordinary skill in the art that numerous alterations may be made without departing from the spirit or scope of the invention. Therefore, the invention is not to be limited except in accordance with the following claims.

What is claimed:

<METHOD CLAIM SET>

1. A method of supervising personal exposure to a consumer electronics device, the
5 method comprising:
receiving a program signal suitable for conversion by the consumer electronics device
into user discernible information;
receiving a viewer indicator indicative of a viewer present in a viewing area
corresponding to the consumer electronics device;
10 comparing the viewer indicator with viewer specifications to identify a viewing profile
associated with the viewer present in the viewing area;
receiving a content-based indicator indicative of the content of the user discernible
information;
comparing the content-based indicator with content-based specifications of the viewing
15 profile;
and
generating a control signal based on the comparison between content-based indicator and
content-based specifications.
2. The method of claim 1 further comprising the steps of
20 scanning the viewing area for the presence of viewers; and
generating a viewer indicator.
3. The method of claim 2 further comprising the step of comparing scanned images
of a viewer with stored images of selected individuals.
4. The method of claim 3 further comprising the step of storing images of selected
25 individuals.
5. The method of claim 4 further comprising the step of photographing selected
individuals.
6. The method of claim 1 further comprising the steps of:
receiving viewer specifications;
30 selecting a viewer specification corresponding to the received viewer indicator; and

receiving content-based specifications corresponding to the viewer specification.

7. The method of claim 1, further comprising the step of extracting the content-based indicator from the program signal.

8. The method of claim 1, wherein the content-based indicator and the content-based specification is a rating.

9. The method of claim 8, wherein the control signal is generated if the content-based indicator rating exceeds the content-based specification rating.

10. The method of claim 1, wherein the content-based indicator and the content-based specification is a subject matter category.

11. The method of claim 10, wherein the control signal is generated if the content-based indicator category matches the selected content-based category.

12. The method of claim 1, further comprising the step of impairing the program signal in response to the control signal.

13. The method of claim 12, wherein the program signal is blocked in response to the control signal.

14. The method of claim 1, wherein the consumer electronics device is a television system and the user discernible information comprises audio/video information.

15. The method of claim 1 further comprising the steps of receiving timing information indicative of a reference time; and

selecting a time range specification corresponding to the timing information.

16. The method of claim 15 further comprising the steps of receiving viewer specifications;

selecting a viewer specification corresponding to the viewer indicator; and

receiving content-based specifications corresponding to the selected viewer specification and the selected time range specifications.

17. The method of claim 16 further comprising the step of comparing the content-based indicator with content-based specifications corresponding to the selected viewer and time range specifications.

18. The method of claim 15, further comprising the step of extracting the content-based indicator and the timing information from the program signal.

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19. The method of claim 15, further comprising the step of generating the timing information within the consumer electronics device.

20. The method of claim 15, wherein the reference time indicated by the timing information is the current time.

5 21. The method of claim 1 further comprising the steps of
entering a viewer specification corresponding to a selected viewer or group of viewers;
and

entering a content-based specification corresponding to the viewer specification.

22. The method of claim 21 further comprising the step of entering a finite time range
10 specification corresponding the viewer and content-based specifications.

23. A method of supervising the exposure to a consumer electronics device, the method comprising:

receiving a program signal suitable for conversion by the consumer electronics device into user discernible information;

15 receiving a viewer indicator indicative of a viewer present in a viewing area corresponding to the consumer electronics device;

receiving viewer specifications corresponding to selected viewers;

comparing the viewer indicator with the viewer specifications to identify a viewing profile associated with one of the selected viewers present in the viewing area;

20 selecting a viewer specification corresponding to the viewer indicator;

receiving a first selected content-based rating corresponding to the selected viewer specification;

receiving a content-based program rating indicative of the content of the user discernible information;

25 comparing the first selected content-based rating with the content-based program rating;
and

impairing the program signal if the content-based program rating exceeds the first selected content-based rating.

24. The method of claim 23, wherein the program signal is impaired by scrambling
30 the program signal.

25. The method of claim 23, wherein the program signal is impaired by blocking the program signal.

26. The method of claim 23, wherein the selected time range specification repeats for each day of a workweek.

5 27. The method of claim 23, further comprising:
receiving a second selected content-based rating corresponding to the selected viewer specification and different from the first selected content-based rating;
comparing the second selected content-based rating with the content-based program rating; and

10 impairing the program signal if the content-based program rating exceeds the second selected content-based rating.

28. The method of claim 23 further comprising the steps of
scanning the viewing area for the presence of viewers; and
generating a viewer indicator.

15 29. The method of claim 28 further comprising the step of comparing scanned images of a viewer with stored images of selected individuals.

30. The method of claim 23, further comprising the step of extracting the content-based program rating from the program signal.

31. The method of claim 23 further comprising the steps of
20 receiving timing information indicative of a reference time; and
selecting a first time range specification corresponding to the timing information.

32. The method of claim 31 wherein the step of receiving a first selected content-based rating comprising receiving a first selected content-based rating corresponding to the selected viewer specification for the selected first time range specification.

25 33. The method of claim 32, further comprising the step of extracting the content-based rating and the timing information from the program signal.

34. The method of claim 33, further comprising the step of generating the timing information within the consumer electronics device.

35. The method of claim 34 further comprising the steps of
30 entering a viewer specification corresponding to a selected viewer or group of viewers;

entering a content-based rating corresponding to the viewer specification; and
entering a finite time range specification corresponding the viewer and content-based specifications.

5 <SYSTEM CLAIM SET>

1. A consumer electronics device having media supervision enforcement circuitry for supervising personal exposure to user-discernible information, comprising:

 a first logic unit configured for generating viewer indicators indicative of viewers present in a viewing area;

 10 non-volatile memory configured for receiving viewing profiles for selected viewers;
 a second logic unit coupled to the first logic unit and the non-volatile memory and being configured for comparing a viewer indicator with viewing profiles to identify an active viewing profile and a content-based indicator with the active viewing profile, the second logic unit being further configured for generating a control signal in response to the comparison between the
15 content-based indicator and the viewing profiles; and

 a signal impairment mechanism coupled to the logic unit and configured for, based on the control signal, selectively passing a program signal therethrough without substantial impairment or passing the program signal therethrough with substantial impairment.

2. The consumer electronics device of claim 1 wherein each of the viewing profiles
20 comprises a viewer specification and a content-based specification corresponding to the viewer specification;

3. The consumer electronics device of claim 2, further comprising an output device coupled to the signal impairment mechanism for transforming the program signal into the user-discernible information.

25 4. The consumer electronics device of claim 1, further comprising a data entry system for selectively inputting the viewer and content-based specifications into the non-volatile memory for storage.

5. The consumer electronics device of claim 1, wherein the non-volatile memory includes a look-up list for storing a plurality of viewer specification and associated content-
30 based specifications.

6. The consumer electronics device of claim 1, wherein the program signal carries the content-based indicator, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator.

7. The consumer electronics device of claim 1, wherein the signal impairment device
5 is a switch.

8. The consumer electronics device of claim 1, wherein the output device is a television system audio/video output device.

9. The consumer electronics device of claim 1, wherein the first logic unit is a computer configured to run facial recognition software.

10. The consumer electronics device of claim 1, further comprising a camera coupled to the first logic unit and configured to continuously scan the viewing area associated with the consumer electronic device.

11. The consumer electronics device of claim 1 wherein each of the viewing profiles comprises a viewer specification, a finite time range specification and a content-based
15 specification corresponding to the viewer and time range specifications.

12. The consumer electronics device of claim 1, further comprising a data entry system for selectively inputting the viewer, time range and content-based specifications into the non-volatile memory for storage.

13. The consumer electronics device of claim 1, wherein the non-volatile memory
20 includes a look-up list for storing a plurality of viewer specification and associated time range and content-based specifications.

14. The consumer electronics device of claim 1, wherein the program signal carries the content-based indicator and timing information, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator and timing
25 information.

15. A recordable medium comprising:
a computer program comprising steps for:
receiving a program signal suitable for conversion by a consumer electronics device into user discernible information;

receiving a content-based indicator indicative of the content of the user discernible information;

receiving a viewer indicator indicative of a viewer present in a viewer area;

selecting a viewer specification associated with the viewer indicator;

5 selecting a content-based specification associated with the selected viewer specification;

comparing the selected content-based specification with received content-based indicator; and

generating a control signal based on the comparison between the selected content-based specification and the received content-based indicator.

10 16. The recordable medium of claim 15, wherein each of the received content-based indicator and the selected content-based specification is a rating.

17. The recordable medium of claim 16, wherein the control signal is generated if the received content-based rating exceeds the selected content-based rating.

18. The recordable medium of claim 15, wherein each of the received content-based
15 indicators and the selected content-based specifications is a subject matter category.

19. The recordable medium of claim 18, wherein the control signal is generated if the received content-based category matches the selected content-based category.

20. The recordable medium of claim 15, wherein the control signal is generated to impair the program signal.

20 21. The recordable medium of claim 15, wherein the computer program further comprises the steps of

receiving timing information indicative of a reference time;

selecting a finite time range specification associated with the timing information;

selecting a content-based specification associated with the selected viewer and time
25 range specifications.

22. A device having comprising:

a viewer monitoring system;

non-volatile memory for receiving viewing profiles of selected viewers;

a logic unit coupled to the viewer monitoring system and the non-volatile memory and

30 being configured for comparing a viewer indicator with viewing profiles to identify an active

OC-20446.1

viewing profile and a content-based indicator with the active viewing profile; the logic unit being further configured for generating a control signal in response to the comparison between the content-based indicator and the viewing profiles; and

a signal impairment mechanism coupled to the logic unit and configured for, based on the
5 control signal, selectively passing a program signal therethrough without substantial impairment or passing the program signal therethrough with substantial impairment.

23. The device of claim 22 wherein the viewer monitoring system comprising a facial recognition system.

24. The device of claim 23 wherein the facial recognition system comprises a
10 computer configured to run a facial recognition program and a camera coupled to the computer.

25. The device of claim 22 wherein each of the viewing profiles comprises a viewer specification and a content-based specification corresponding to the viewer specification.

26. The device of claim 22, further comprising an output device coupled to the signal impairment mechanism for transforming the program signal into the user discernible
15 information.

27. The device of claim 22, further comprising a data entry system for selectively inputting the viewer and content-based specifications into the non-volatile memory for storage.

28. The device of claim 22, wherein the non-volatile memory includes a look-up list for storing a plurality of viewer specifications and associated content-based specifications.

20 29. The consumer electronics device of claim 22, wherein the program signal carries the content-based indicator, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator.

30. The consumer electronics device of claim 22, wherein the signal impairment device is a switch.

25 31. The consumer electronics device of claim 22, wherein the output device is a television system audio/video output device.

32. The consumer electronics device of claim 22 wherein each of the viewing profiles comprises a viewer specification, a finite time range specification and a content-based specification corresponding to the viewer and time range specifications.

33. The consumer electronics device of claim 22, further comprising a data entry system for selectively inputting the viewer, time range and content-based specifications into the non-volatile memory for storage.

34. The consumer electronics device of claim 22, wherein the non-volatile memory
5 includes a look-up list for storing a plurality of viewer specifications and associated time range and content-based specifications.

35. The consumer electronics device of claim 23, wherein the program signal carries the content-based indicator and timing information, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator and timing
10 information.

ABSTRACT

Systems, methods and apparatuses are provided for allowing a user to supervise personal exposure to a program exhibited by a consumer electronics device, such as, e.g., a television system. The consumer electronics device includes a facial recognition system and media rating enforcement circuitry that analyzes a program signal and either blocks or passes the program signal based on certain content and viewer based criteria and also, in the alternative, time based criteria. In this connection, a user can program the enforcement circuitry with the content and viewer based criteria in the form of one or more viewing profiles comprising viewer specifications and content-based specifications associated with the viewer specifications, and, which specify a rating and/or a subject matter category. The enforcement circuitry receives one or more viewer indicators which are indicative of the viewers present in a viewing area and one or more content-based indicators, which are indicative of a rating and/or a subject matter category of the program. The enforcement circuitry compares the viewer indicators with the viewer specifications and then the content-based indicators with the content-based specifications. Based on this comparison, the enforcement circuitry either passes the program signal to an output device for transformation of the program signal into the program or blocks the program signal from being sent to the output device.

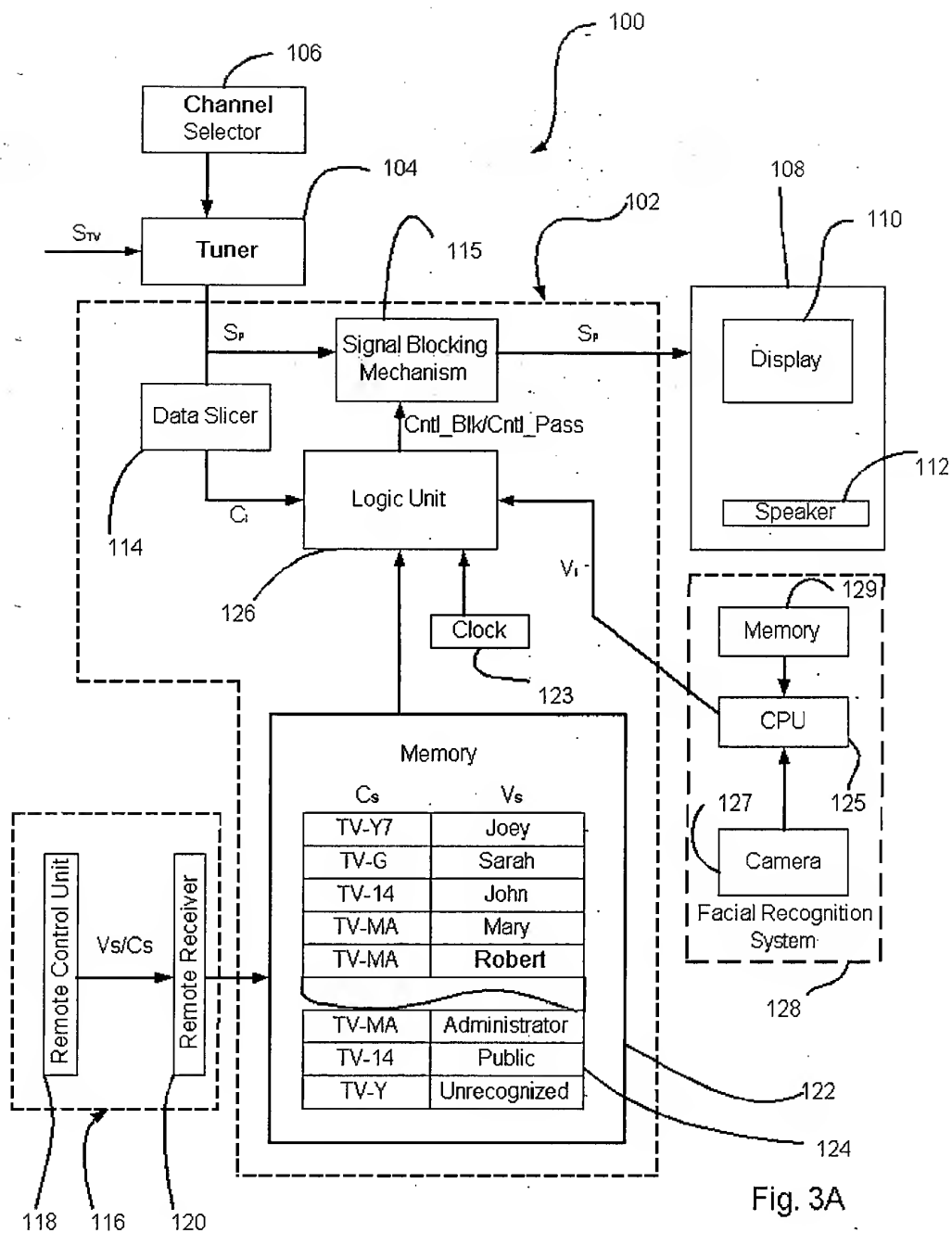


Fig. 3A

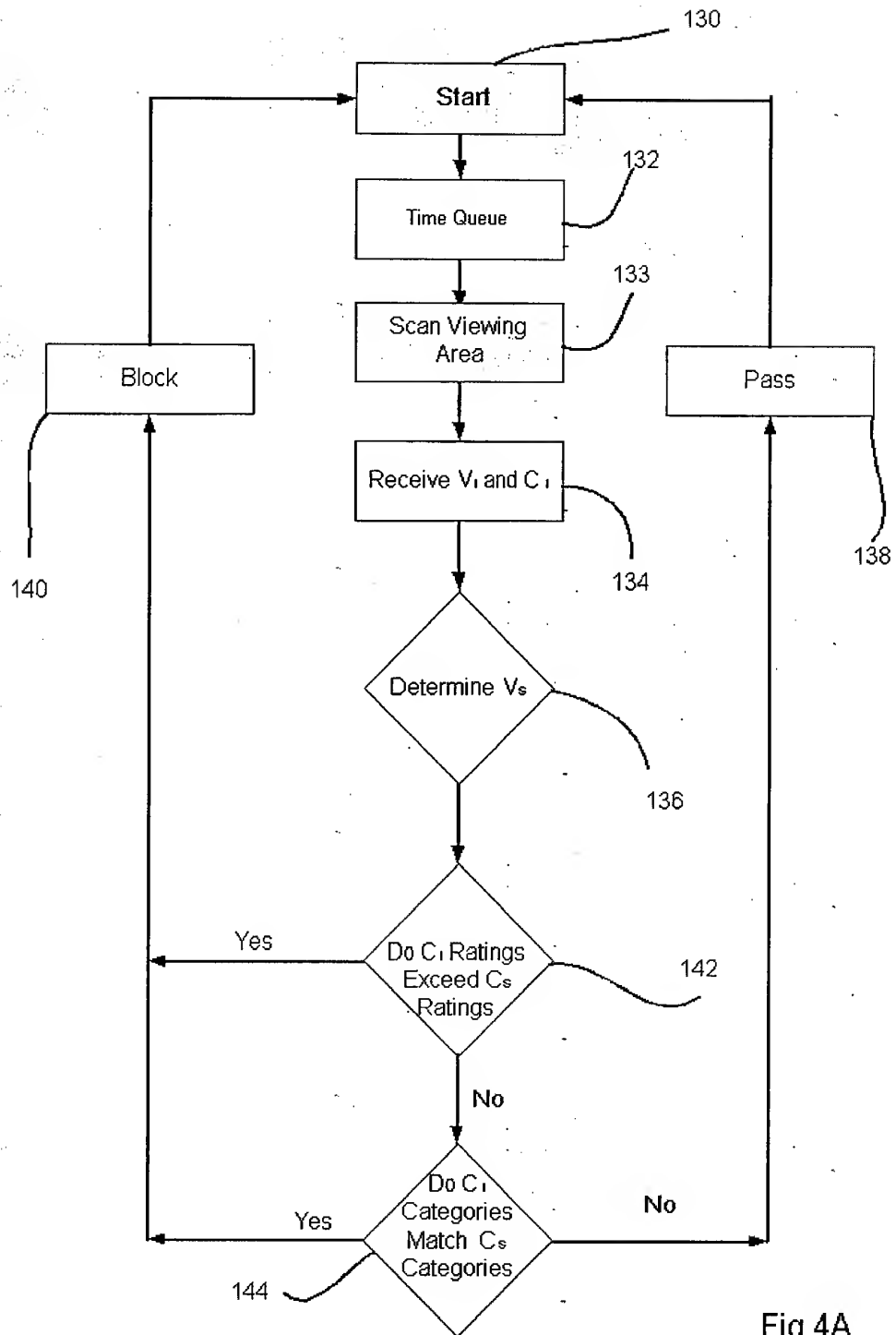


Fig 4A

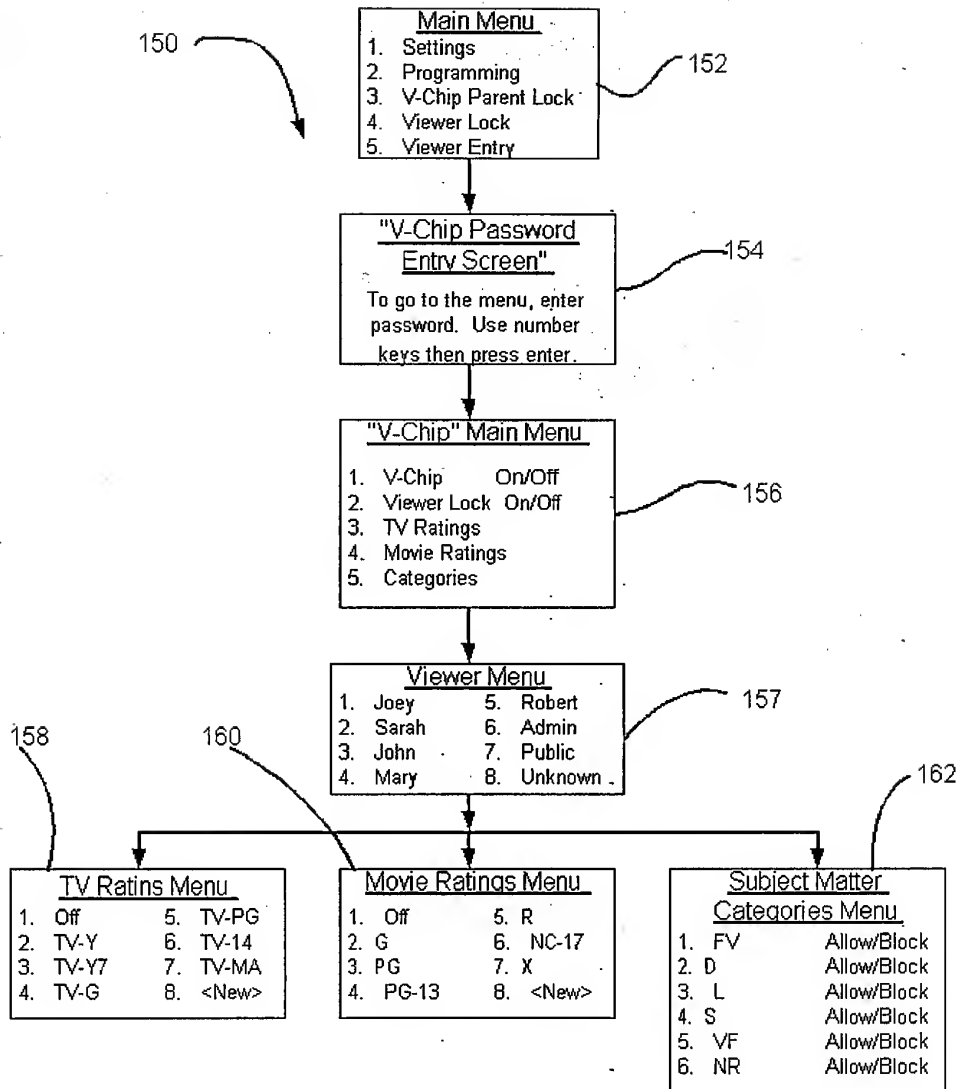


Fig. 5A

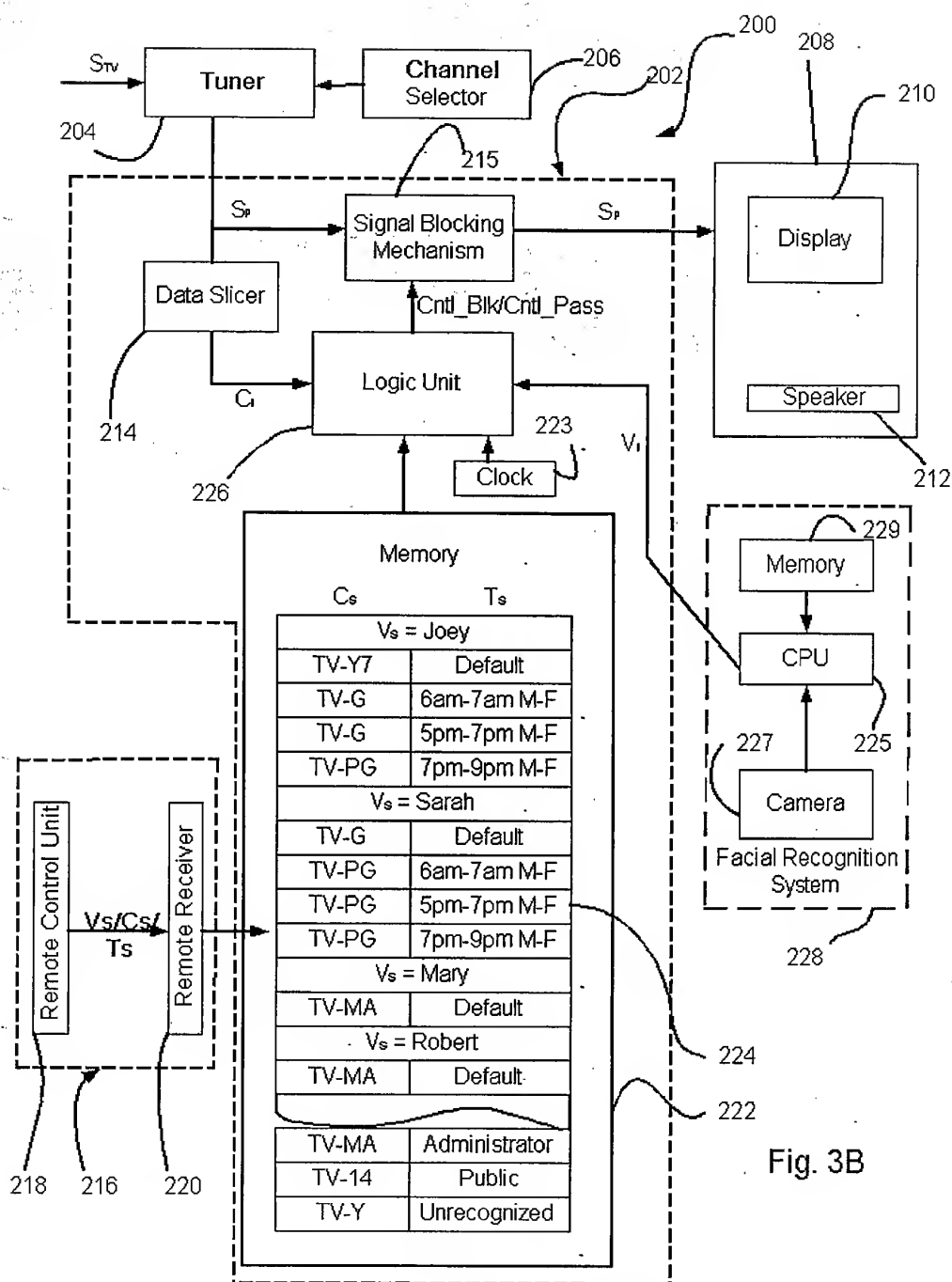


Fig. 3B

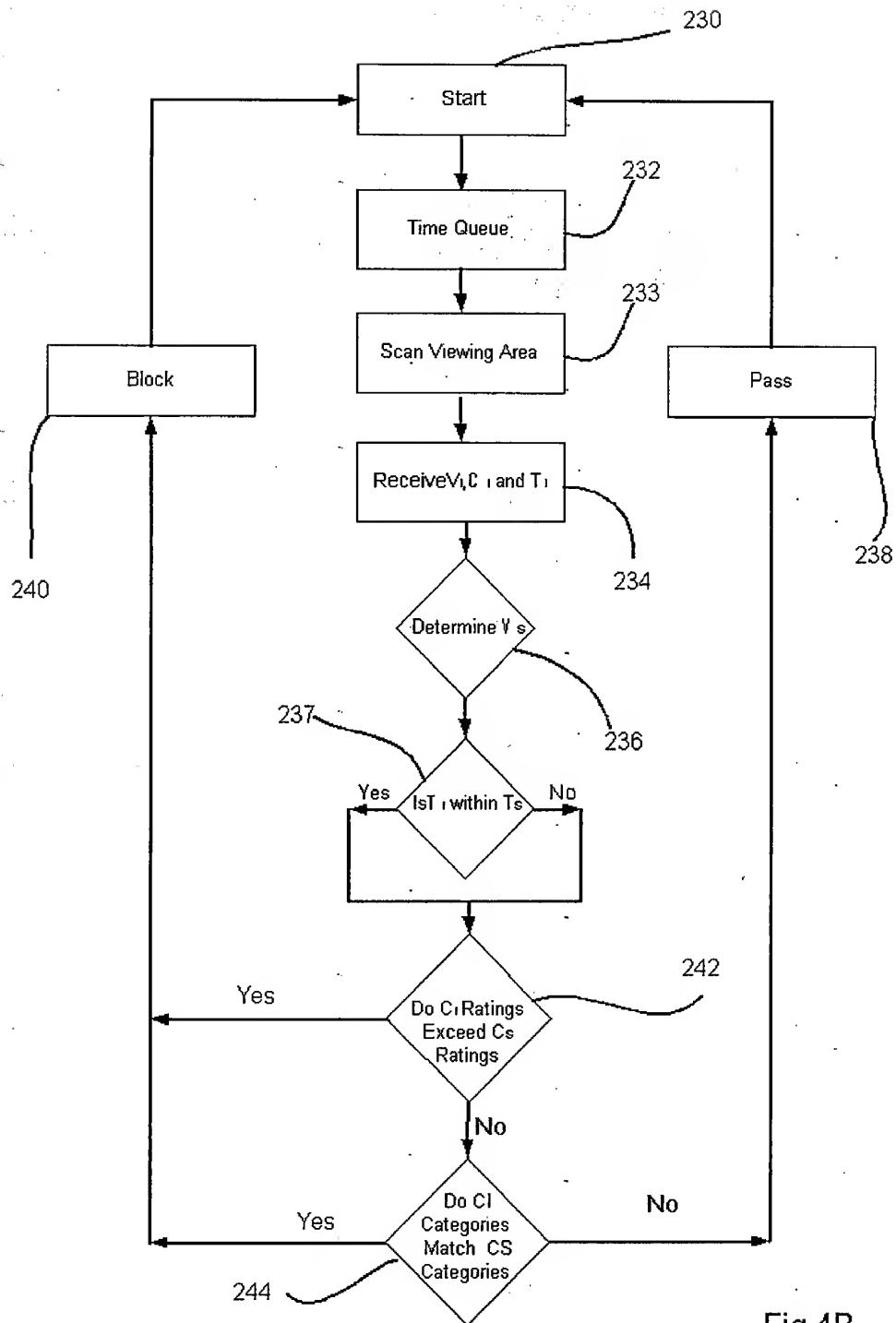


Fig 4B

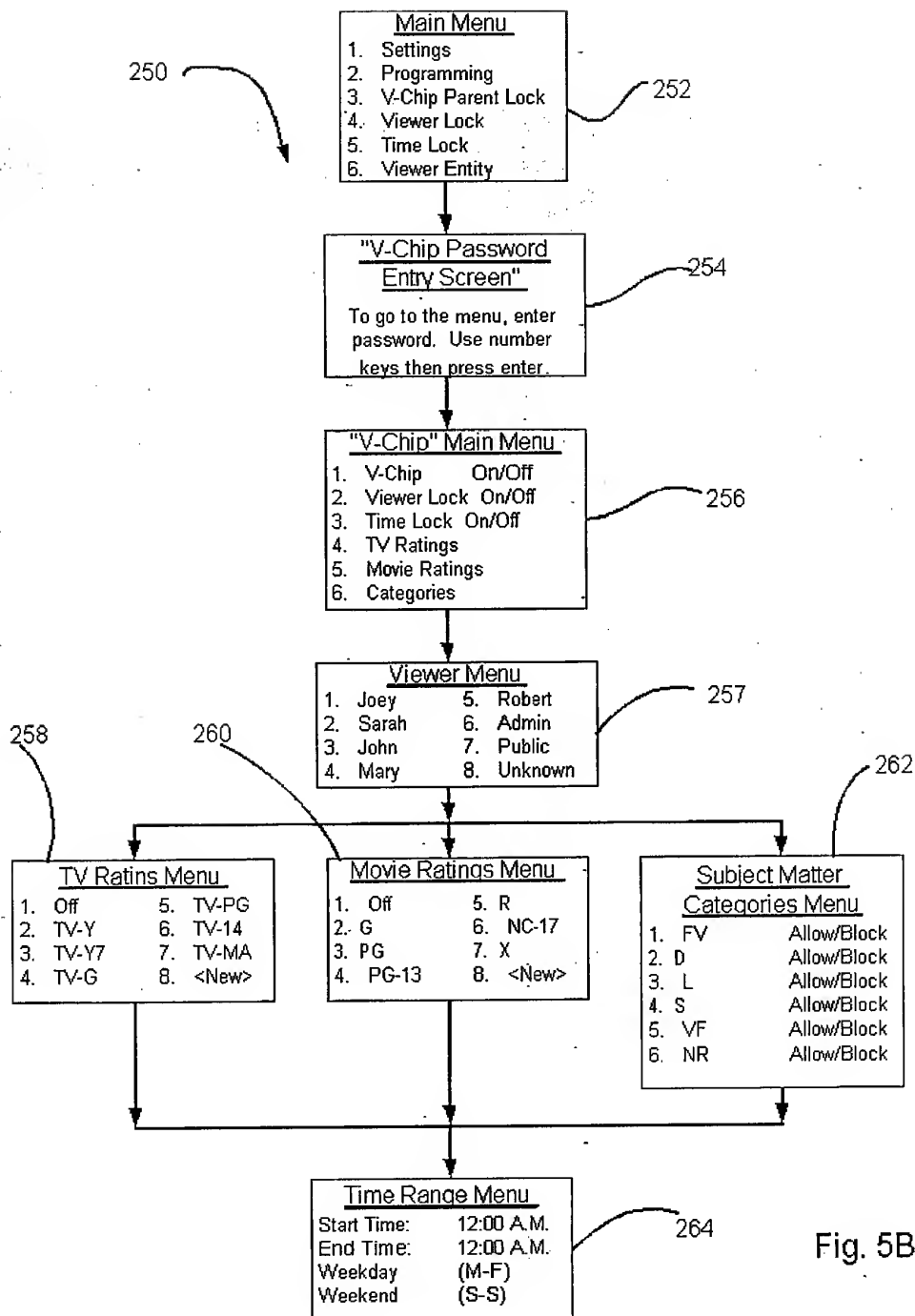


Fig. 5B

Hicks, Jim

EXHIBIT C

From: Stecyk, Polly
Sent: Tuesday, June 10, 2003 11:43 AM
To: Hicks, Jim
Subject: RE: Application: Passive Enforcement Method for Media Ratings

Done. I have the marked up copy.

-----Original Message-----

From: Hicks, Jim
Sent: Tuesday, April 01, 2003 1:43 PM
To: Stecyk, Polly
Subject: FW: Application: Passive Enforcement Method for Media Ratings

Polly,
Please review and comment/mark-up as appropriate and return. Thanks, Jim

-----Original Message-----

From: Roberts, Kenneth S. [mailto:kroberts@Orrick.com]
Sent: Sunday, March 30, 2003 12:54 PM
To: Jim Hicks (E-mail)
Subject: Application: Passive Enforcement Method for Media Ratings

Jim - Attached is an application for Polly's passive enforcement system. The attached application does not include Figs. 1 and 2, which are prior art v-chip system and signal drawings, and Fig. 6 which is a drawing of a TV remote. Please have Polly review and provide me with her comments asap.

Best regards, Ken
Kenneth S. Roberts

O

> O R R I C K
Orrick, Herrington & Sutcliffe LLP
4 Park Plaza, Suite 1600
Irvine, California 92614-2558
Telephone: (949) 567-6700
Facsimile: (949) 567-6710
kroberts@orrick.com

<<DOCSOC1-#133791-v2-MDEA_-_53_-_Spec_for_Passive_Enforcement_Method_for_Media_Ratings.DOC>>

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<http://www.orrick.com>

EXHIBIT D

Roberts, Kenneth S.

From: Hicks, Jim [JHicks@mdea.com]
Sent: Friday, May 16, 2003 12:19 PM
To: Roberts, Kenneth S.
Subject: RE: Passive System for ratings enforcement - Stecyk

Hi Ken,
Polly just informed me yesterday that she will review this over the weekend.
Jim

-----Original Message-----

From: Roberts, Kenneth S. [mailto:kroberts@orrick.com]
Sent: Friday, May 16, 2003 9:03 AM
To: Jim Hicks (E-mail)
Subject: Passive System for ratings enforcement - Stecyk

Jim - Any word on this application? Ken

Kenneth S. Roberts

O

> O R R I C K

Orrick, Herrington & Sutcliffe LLP
4 Park Plaza, Suite 1600
Irvine, California 92614-2558
Telephone: (949) 567-6700
Facsimile: (949) 567-6710
kroberts@orrick.com

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EXHIBIT E

Roberts, Kenneth S.

From: Roberts, Kenneth S.
Sent: Thursday, July 10, 2003 9:54 AM
To: Polly Stecyk (E-mail)
Subject: passive enforcement app

Hi Polly - Have you finished your review of the latest draft of the application?
Ken

Kenneth S. Roberts



ORRICK

Orrick, Herrington & Sutcliffe LLP

4 Park Plaza, Suite 1600
Irvine, California 92614-2558
Telephone: (949) 567-6700
Facsimile: (949) 567-6710
kroberts@orrick.com

Roberts, Kenneth S.

EXHIBIT F

From: Roberts, Kenneth S.
Sent: Monday, July 21, 2003 9:42 AM
To: 'Stecyk, Polly'
Subject: RE: 705397.53 Passive Enforcement

thanks.
KR

-----Original Message-----

From: Stecyk, Polly [mailto:PStecyk@mdea.com]
Sent: Monday, July 21, 2003 9:38 AM
To: Roberts, Kenneth S.
Subject: RE: 705397.53 Passive Enforcement

Sorry for the delay. I was on vacation for 2 weeks. I have a few more clarifications for V-Chip. I'll let you know later today or tomorrow.

p

-----Original Message-----

From: Roberts, Kenneth S. [mailto:kroberts@orrick.com]
Sent: Friday, July 18, 2003 9:04 AM
To: Stecyk, Polly
Cc: Hicks, Jim
Subject: 705397.53 Passive Enforcement

Polly - Please advise where you stand on the review of the revised application.
Thanks.
Ken

Kenneth S. Roberts

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> O R R I C K

Orrick, Herrington & Sutcliffe LLP
4 Park Plaza, Suite 1600
Irvine, California 92614-2558
Telephone: (949) 567-6700
Facsimile: (949) 567-6710
kroberts@orrick.com

"MMS <Orrick.com>" made the following annotations.

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<http://www.orrick.com>
=====

=====

EXHIBIT G

Roberts, Kenneth S.

From: Stecyk, Polly [PStecyk@mdea.com]
Sent: Friday, August 01, 2003 9:42 AM
To: Roberts, Kenneth S.
Subject: RE: 705397.53 Passive Enforcement

Ken,

Sorry for the delay. Very busy with deadlines here. My comments. If you have questions, please let me know.

Thanks, polly

Page 1, line 25. The description may lead to the conclusion that category data is a sufficient rating data but that would be incorrect. Category data can only further restrict the V-Chip ratings of TV-Y7, TV-PG, TV-14, TV-MA as per fig. 7: I would not recommend stating "adult/foul language". The term is actually "adult language".

Page 6, line 25. "an system" should be "a system"

Page 8, line 30. Same concern about category data dependence upon V-Chip ratings.

Page 12, line 21. Category data works this way. V-Chip setting is TV-14 with V category data. This means that programs TV-Y, TV-Y7, TV-G, TV-PG and TV-14 can all be viewed. If a TV-PG or TV-14 program has a V category bit, then the program is blocked. All TV-MA programs are also blocked. Just for your info, what constitutes V for TV-MA will be more violent than for TV-PG because TV-MA programming is more mature and has adult content. In summary, category data further restricts the V-Chip rating. When the program and the selected category data match then the program is blocked even if the V-Chip setting is permitted.

Page 13, line 2 -5. Not exactly: see the previous comment.

Figure 7. Missing TV-G (should be between TV-Y7 and TV-PG) with no applicable category data.

Roberts, Kenneth S.

From: Stecyk, Polly [PStecyk@mdea.com]
Sent: Thursday, August 28, 2003 2:07 PM
To: Roberts, Kenneth S.
Subject: RE: MDEA - 53 - Spec for Passive Enforcement Method for Media Ratings _v2.DOC

Ken,

Looks good. Only one small change. Page 16, lines 23 - 27. The category data does not include a space and is in alphabetical order.
Three corrected examples: TV-14 DLS, TV-MA LSV, TV-14 DLSV.

Name: Polly Stecyk
Address: 8871 Nightingale Ave, Fountain Valley, CA 92708
Citizenship: USA

Thanks, polly

-----Original Message-----

From: Roberts, Kenneth S. [mailto:kroberts@orrick.com]
Sent: Thursday, August 28, 2003 1:58 PM
To: Stecyk, Polly
Subject: MDEA - 53 - Spec for Passive Enforcement Method for Media Ratings _v2.DOC

Hi Polly - Here is the revised version with changes highlighted in track mode. Assuming this is correct, I am going to have my assistant prepare the formal papers for you to sign and send the same to Jim Hicks. Please confirm you legal name, home address and country of citizenship.

Thanks.

Ken

<<MDEA - 53 - Spec for Passive Enforcement Method for Media Ratings_v2.DOC>>

"MMS <Orrick.com>" made the following annotations.

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<http://www.orrick.com>
=====

Roberts, Kenneth S.

From: Roberts, Kenneth S.
Sent: Thursday, August 28, 2003 1:58 PM
To: Polly Stecyk (E-mail)
Subject: MDEA - 53 - Spec for Passive Enforcement Method for Media Ratings_v2.DOC
Attachments: MDEA - 53 - Spec for Passive Enforcement Method for Media Ratings_v2.DOC

Hi Polly - Here is the revised version with changes highlighted in track mode. Assuming this is correct, I am going to have my assistant prepare the formal papers for you to sign and send the same to Jim Hicks. Please confirm you legal name, home address and country of citizenship.

Thanks.

Ken



MDEA - 53 -
Spec for Passive E..

DESCRIPTION

PASSIVE ENFORCEMENT METHOD FOR MEDIA RATINGS

Field of the Invention

[0001] 5 This invention relates to the field of consumer electronics devices, and more particularly to methods and systems for limiting personal exposure to a television system or other consumer electronics device through passive enforcement of media ratings.

Background

[0002] 10 There has been long-standing concern on the part of parents or guardians as to the content of programs and other media viewed by children and minors. This concern has been long-standing with respect to television broadcasts, and more recently, with respect to on-line services such as those provided through service providers or through other electronic means of text and image-based communication.

[0003] 15 Various attempts have been made to limit access by children to subject matter that is deemed inappropriate. Certain locks simply block specific channels, where those channels are either known to or are suspected to carry programming which is deemed unacceptable for viewing by children. Other systems incorporate time-based limitations, for example, where the entire television may not be used during certain hours. Typically, the set time limits would
20 preclude operation of the system during "bedtime" hours or at times when parental supervision does not exist, e.g., after school hours. Yet other lock systems serve to make the entirety of the system unavailable other than to authorized users.

[0004] Various attempts have been made to provide more refined lock systems. One attempt, the so-called "V-chip" system, utilizes a coding system indicative of content. For example, a given
25 show may have a rating designation such as TV-Y7, TV-PG, TV-14 or TV-MA and a category designation such as be designated as including adult/foul language, violence or sexual situations, which are used to further restrict the rating designator. These indicators are often provided by single letter designators, such as L, V and S, respectively. Other coding systems analogous to movie rating codes, such as G for general audience, PG for parental guidance, R for restricted,
30 etc., may also serve as a censor-based assessment of the content. These content-based

designators are carried in television systems over the extended data service (XDS or EDS) system. The adopted standard for NTSC television is the EIA-608 standard. Information which is typically carried in such systems includes the network name, show title, and brief description of the contents of the show. There are currently proposals to include rating information of the
5 type previously mentioned in the XDS data.

[0005] Fig. 1 shows a typical format of EIA-608 standards as a function of time. Initially, a horizontal sync pulse 10 initiates a pulse train. A color burst pulse 12 follows the horizontal sync pulse, and is typically provided for all line scans. Next, a clock run-in-signal 14 serves as a synchronizing signal. A sequence of start bits 16, labeled S1, S2 and S3 follow. As depicted, the
10 pulse train here is shown with pulse S3 being "high" and S1 and S2 being "low." In the extended data service system, various characters are then provided. Character one 18 is composed of bits (labeled B0, B1, B2, B3, B4, B5 and B6) and a parity check bit 22 (labeled P1). Character two 24 is composed of bits (labeled B0, B1, B2, B3, B4, B5, B6 and B7) and a parity check bit 26 (labeled P2) for the byte of character two 24. Typically, the XDS data is carried on a line, which
15 is not visible on the television display, such as line 21.

[0006] Fig. 2 shows a schematic drawing of the prior art V-chip system. A television or other display 30 is the ultimate recipient of display information. Initially, some source of information such as a television signal 32 is supplied from any number of sources, such as over-the-air transmission, cable or other recorded source. Channel selector 34 controls the tuner 36 to select
20 the desired information from television signal 32. The output of tuner 36 is an audio/video signal 38 corresponding to the channel selected. A data slicer 40 is coupled to the output of the tuner 36. The data slicer 40 functions to monitor the XDS signal as carried in the audio/video signal 38. The data slicer 40 may either strip the XDS signal from the audio/video signal 38 or simply duplicate the XDS signal. With the V-chip system, the XDS data obtained by the data
25 slicer 40 is program rating information. The program rating information is supplied from the data slicer 40 to the comparator 42. A list 44 of prohibited ratings is stored or provided. Typically, the system would identify all prohibited ratings by level, such as R and X, though a system could utilize logic to prohibit any rating at a given level or above (the convention above meaning more mature or more likely to be prohibited). In the event of coincidence between the
30 output of the data slicer 40 comprising the rating data of the program and the list of prohibited

ratings 44, the comparator 42 provides a blocking signal 46 to signal blocking mechanism 48. The signal blocking mechanism 48 functions as a switch, blocking or otherwise scrambling audio/video signal 38, such that the show having the prohibited rating is not displayed.

[0007] Such systems are considered active systems in that a system administrator (or parent) must continuously enable/disable the system with the use of digital codes. This requires the parent to continuously disable the V-chip system during adult viewing and enable the V-chip system during child viewing. This can become quite tedious, and more importantly, leaves open the possibility that the parent may forget to enable the V-chip system when adult viewing has ended.

10

Summary of the Invention

[0008] This present invention comprises novel methods, apparatuses and systems for supervising personal exposure to a consumer electronics device, such as, e.g., a television system, by reviewing programs for a selected content threshold in regard to particular viewers and, in the alternative, not reviewing programs for selected content threshold in regard to particular viewers during a finite time period.

[0009] In a preferred method of the present invention, a program signal is received by a consumer electronics device having a facial recognition system and an enforcement or intervention mechanism such as "V-chip" circuitry. The program signal, without intervention, is transformed into user discernible information for exhibition to a user. In the case of a television system, the user discernible information may represent itself as a picture and sound. In addition to the program signal, one or more viewer indicators and one or more content-based indicators are received. The viewer indicators, which are received from the facial recognition system, are indicative of the viewers present in the viewing area associated with the consumer electronics device and scanned by the facial recognition system's camera. The content-based indicators, such as, e.g., a television or movie rating or a subject matter category, are indicative of the content of the user discernible information and can be carried by the program signal itself, or they can originate from some other source. One or more viewer specifications can be selected and one or more content-based specifications, such as, e.g., a rating or subject matter category, associated with each of the viewer specifications can then be selected to create viewing profiles

for selected viewers. Either the user or the manufacturer can effect selection by programming the viewer specifications and associated content-based specifications into the "V-chip" circuitry.

[0010] Each of the viewer indicators are compared to the selected viewer specifications to determine which viewing profiles are active. Each of the received content-based indicators is
5 then compared to the selected content-based specifications of the active viewing profiles. In response to the comparison, a control signal is generated, which either causes the program signal to be impaired (block control signal), for instance by means of blocking or scrambling, or unimpaired (pass control signal). In the case of a television system, one or more of the video, audio, or closed captioning aspects of the program signal can be impaired. The block control
10 signal can be generated if a received content-based indicator exceeds (if rating) or matches (if categorical) a selected content-based indicator. The pass control signal can be generated if none of the received content-based indicators exceeds (if rating) or matches (if categorical) selected content-based specifications.

[0011] In a preferred embodiment of the present invention, a consumer electronics device
15 includes a facial recognition system comprising a computer or CPU running facial recognition software and a camera coupled to the CPU to continuously scan the associated viewing area, and "V-chip" circuitry comprising a logic unit, non-volatile memory and a signal impairing mechanism. The "V-chip" circuitry can be utilized in a television system, a video cassette recorder, audio equipment, or any consumer electronics device whereby user discernible
20 information can be generated. The "V-chip" circuitry allows the consumer electronics device to transform a program signal into user discernible information if the program signal meets certain content based criteria associated with a viewer, and prevents the consumer electronics device from transforming the program signal into user discernible information if the program signal does not meet certain content and viewer based criteria.

[0012] 25 In this regard, the logic unit is coupled to non-volatile memory and is configured for performing the following upon execution of instructions stored within the non-volatile memory. The logic unit receives one or more viewer indicators from a facial recognition system and one or more content-based indicators, which, if carried by the program signal, can be extracted or copied by a data extraction device, such as, e.g., a data slicer. The logic unit also receives one or
30 more viewer specifications and associated content-based specifications, which have been

selected by either the user or the manufacturer and stored in the non-volatile memory. The logic unit compares the viewer indicators with the viewer specifications to identify the active viewing profile(s) and then compares the received content-based indicators with selected content-based specifications when the viewer indicators fall within any of the viewer specifications. The logic
5 unit then generates either a pass control signal or a blocking control signal based on these comparisons.

[0013] The signal impairing device receives the program signal and is configured for either passing the program signal there through without substantial impairment or passing the program signal therethrough with substantial impairment. The signal impairing device is coupled to the
10 logic unit for receiving the control signals therefrom. Upon receipt of the block control signal, the signal impairing device blocks or scrambles the program signal. Upon receipt of the pass control signal, the signal impairing device passes the program signal through without substantial impairment.

[0014] In an alternate embodiment of the present invention, a program signal, one or more
15 viewer indicators and one or more content-based indicators, is received by a consumer electronics device, and without intervention is transformed into user discernible information for exhibition to a user. In addition to the program signal, one or more viewer indicators and one or more content-based indicators, timing information, such as, e.g., the current time, is also received. The content-based indicators and timing information can be carried by the program
20 signal itself, or they can originate from some other source. One or more viewer and finite time range specifications can be selected and one or more content-based specifications associated with each of the viewer and time range specifications can then be selected to create viewing profiles for selected viewers. Either the user or the manufacturer can effect selection by programming the viewer specification and associated content-based specification and finite time
25 range specifications into the "V-chip" circuitry.

[0015] Other and further objects, features, aspects, and advantages of the present invention will become better understood with the following detailed description of the accompanying drawings.

Brief Description of the Drawings

[0016] The drawings illustrate both the design and utility of preferred embodiments of the present invention, in which:

[0017] Fig. 1 shows the prior art EIA-608 standards, depicting a typical signal as a function of
5 time;

[0018] Fig. 2 is a schematic drawing of the prior art "V-chip" system;

[0019] Fig. 3A is a schematic drawing of a preferred embodiment of a passive enforcement system constructed in accordance with the present invention;

[0020] Fig. 3B is a schematic drawing of an alternate embodiment of a passive enforcement
10 system constructed in accordance with the present invention;

[0021] Fig. 4A is a flowchart showing a preferred method of selecting blocking or passing a program signal performed in the system of Fig. 3A;

[0022] Fig. 4B is a flowchart showing a preferred method of selecting blocking or passing a program signal performed in the system of Fig. 3B;

[0023] 15 Fig. 5A is a menu system that allows a user to program the system of Fig. 3A with viewer specifications and associated content-based specifications.

[0024] Fig. 5B is a menu system that allows a user to program the system of Fig. 3B with viewer specifications and associated content-based and finite time range specifications;

[0025] Fig. 6 is a detailed depiction of a remote control unit used in conjunction with the menu
20 systems of Fig. 5A and 5B;

[0026] Fig. 7 is a chart showing rating and subject matter categories.

Detailed Description of the Preferred Embodiments

[0027] The public has demanded that children be protected from questionable material on television, on the Internet, in movies, and in other media. However, because most blocking systems based on media ratings are active systems, an system administrator, such as the parent or
5 other supervising adult, must continuously enable and disable the system with the use of digital codes. In contrast, the media rating enforcement system and method of the present invention is a passive system that incorporates a facial recognition system. The facial recognition system includes facial recognition software running on a computer or other CPU that may be incorporated in the media device or system being viewed. Coupled to the computer or CPU is a
10 digital video camera that continually scans the viewing area and captures facial images of all persons within viewing distance of the media device or system being viewed such as a television, video monitor, movie screen, computer monitor, and the like. Whenever a face is recognized, a pre-established "viewing profile" for that individual contained in memory is examined by the enforcement system. If the rating of the current program exceeds the rating in the viewing
15 profile, the system will block the program from view until that individual vacates the immediate viewing area such that the camera no longer scans the offending individual's face, even though there may be others in the room who are actually mature enough to watch the program. The system, however, can be overridden with a parental lock code or pass-code. Alternatively, the system may be programmed to disregard the presence of an offending individual if the system
20 administrator (parental supervision) is in the viewing area.

[0028] The system may also be used to monitor viewing habits of persons within a given household. The system could store the names and/or faces of all of the individuals watching a program. Such information may be useful to parents interested in monitoring the viewing habits of their children, and in particular the content viewed and viewing time. In addition, this system
25 may be used by media rating agencies, with the permission of the viewers, to gather statistics on what programs are watched, age and gender of each viewer, preferences of each viewer, and the like.

[0029] Turning to the figures, a detailed discussion of the media rating enforcement system and method of the present invention is provided. Fig. 3A shows a schematic representation of a
30 consumer electronics system 100, and in particular a television system, constructed in accordance

with a preferred embodiment of the present invention to include a passive media rating enforcement system. It should be noted that the consumer electronics system 100 is not to be limited to a television system, but can include any type of system that receives information that a parent might find objectionable, such as, e.g., a video cassette recorder (VCR), audio equipment
5 and computer equipment. In general, the consumer electronic device receives a content signal that provides content to a viewer/user in the form of audio/visual information. In regard to the television system 100, it receives a television program signal S_{TV} , and absent intervention, provides a program to a viewer in the form of audio/visual information. The television system 100 includes enforcement system circuitry 102, commonly referred to as the "V-chip", that can
10 be programmed by a user, such as, e.g., a parent, to selectively limit exposure of any programs to children that the user feels contain inappropriate subject matter. In particular, the "V-chip" circuitry 102 can be programmed to block the program signal S_P if the content of the program meets certain criteria selected by the user for a particular viewer present in the viewing area and identified by the facial recognition system 128.

[0030] 15 In this connection, the television system 100 includes a tuner 104, which receives the television signal S_{TV} , and, under the control of a channel selector 106, provides a program signal S_P at an output. Typically, the television signal S_{TV} includes a broad range of program channels when received via an antenna or directly from cable entering the premises. It is often the case, however, that the television signal S_{TV} received by the tuner 104 has been pre-tuned, for
20 example, through a cable box or video cassette recorder (VCR) (both not shown). The television system 100 further includes an audio/visual output device 108, which transforms the program signal S_P into the program in the form of a display on a display screen 110 and sound from a speaker 112.

[0031] The "V-chip" circuitry 102 of the television system 100 includes a signal blocking mechanism 115, which is coupled to the output of the tuner 104 to receive the program signal S_P
25 The signal blocking mechanism 115 is shown as a simple switch, but can be any mechanism that allows a signal to be selectively passed and/or blocked. Depending on the state of a control signal received by the signal blocking mechanism 115, the program signal S_P is either blocked from passing or allowed to pass to the audio/video output device 108. In alternative
30 embodiments, the "V-chip" circuitry 102 includes a signal impairment device such as a signal

scrambler, which either scrambles the program signal S_P or passes the program signal S_P to the audio/video output device 108 without impairment thereof.

[0032] In this particular embodiment, the program signal S_P not only includes information required to provide the program to the viewer, but also one or more content-based indicators C_1 .

The content-based indicators C_1 5 are indicative of the content of the p include a rating, such as, e.g., a television or movie rating, or a rating and a subject matter category, such as, e.g., sex-or, violence or adult language, which is used to further restrict the rating. Presently, the Federal Communications Commission (FCC) dictates the following ratings and subject matter categories: television ratings shall include TV-Y, TV-Y7, TV-G, TV-PG, 10 TV-14 and TV-MA; movie ratings include G, PG, PG-13, R, NC-17 and X; and the subject matter categories include FV (Fantasy Violence), D (Sexual Dialog), L (Adult Language), S (Sexual Situations) and V (Violence). It can be appreciated by those skilled in the art that the present invention is not limited to the above-disclosed ratings and categories, but can encompass any content-based indicator C_1 that provides information allowing an individual to determine the 15 content of a particular program received by the television system 100.

[0033] The content-based indicators C_1 are incorporated into the program signal S_P , preferably using an extended data service (XDS or EDS) system. It can be appreciated by those skilled in the art that the content-based indicators C_1 can originate from any source dependent or independent of the program signal S_P . For instance, the content-based indicators C_1 can be 20 supplied by the Program Status Information Protocol (PSIP) or an Electronic Program Guide (EPG). The "V-chip" circuitry 102 further includes a data extraction device 114, which is coupled to the output of the tuner 104 to receive the program signal S_P . In this embodiment, the data extraction device 114 is a closed caption data slicer, which monitors the program signal S_P and obtains from it XDS information, namely, the content-based indicators C_1 .

[0034] 25 A user entry system 116, typically embodied in a remote control unit 118 and a corresponding remote receiver 120, is the mechanism by which a user inputs one or more viewer specifications V_S and one or more content-based specifications C_S associated with the viewer specifications V_S to build and store viewing profiles. The one or more viewer specifications V_S are indicative of the viewers likely to be identified by the facial recognition system in the viewing area and, like the viewer indicators V_1 30 , comprise:

content-based specifications C_S are indicative of the content of any program that the user wishes to limit on a viewer basis and, like the content-based indicators C_I , the content-based specification C_S can be selected from a variety of content ratings and subject matter categories. The "V-chip" circuitry 102 includes non-volatile memory 122, which is coupled to the program entry system 116 for receiving and storing the viewer specifications V_S 5 based specifications C_S as viewing profiles in a look-up list 124. Preferably, the non-volatile memory 122 is embodied in Flash Memory or an EEPROM.

[0035] The "V-chip" circuitry 102 further includes a logic unit 126 to generate either a block control signal $CTRL_{BLOCK}$, which causes the signal blocking mechanism 115 to preclude the program signal S_P 10 from being passed effectively to the audio/video output device 108 control signal $CTRL_{PASS}$, which permits the program signal S_P to be passed via the signal blocking mechanism 115 to the audio/video output device 108. In the preferred embodiment, the logic unit 126 is preferably implemented as a microprocessor. While an integrated device is preferable, any analog or digital system, discrete or integrated, or combinations thereof may be 15 utilized if the functionalities of the invention may be achieved. For expository convenience, the logic unit 126 will be identified as a comparator, though the label comparator is not intended to exclude other logic combinations or functionalities.

[0036] The logic unit 126 is coupled to the output of the data slicer 114 to receive the extracted content-based indicators C_I , the non-volatile memory 122 to receive the viewer specifications V_S and associated content-based specifications C_S 20, and the viewer indicators V_I indicative of the viewers present in the viewing area. The logic unit 126 compares the viewer indicators V_I with the viewer specifications V_S to determine the active viewing profiles and the content-based indicators C_I with the content-based specifications C_S of the active viewing profiles, and then generates a control signal $CTRL$ in response thereto, which either constitutes a block control signal $CTRL_{BLOCK}$ or a pass control signal $CTRL_{PASS}$ 25 lowest or least mature content-based specifications C_S associated with a viewer in the viewing area preferably dictates which control signal $CTRL$, i.e., a block control signal $CTRL_{BLOCK}$ or a pass control signal $CTRL_{PASS}$, will be generated by the logic unit 126. The logic unit 126 is coupled to a clocking signal generating clock 123, which allows the control signal $CTRL$ to be periodically updated, preferably, during every frame of the program signal S_P 30

ms). The control signal CTRL can, however, be updated less frequently, e.g., every second or every minute.

[0037] The facial recognition system 128 includes a digital video camera 127 coupled to a dedicated computer or CPU 125, or, in the alternative, a CPU of the viewing device. The CPU 125 preferably runs facial recognition software known in the art while the camera 127 continuously scans the entire viewing area associated with the television system 100. The facial recognition system 128 further comprises nonvolatile memory 129 used for storage of image libraries associated with individual viewers. Prior to implementation, all likely viewers, e.g., all members of a family, are photographed from several different angles by the system 128 using the digital video camera 127, or other digital camera from which the images can be downloaded into the memory 129 of the system 128. (see, e.g., the "SCAN NEW VIEWERS" selection of the "VIEWER SETUP" menu 156 of the menu system 150 in Fig. 5A). When stored, the digital images comprising the facial features of individual viewers are associated with an individual viewers name, age or the like. When the facial features are recognized by the system 128, viewer indicators V_i 15 are sent to the logic unit 126 of the enforcement circuitry 102. When recognized, the facial features may trigger the transmission of a default viewer indicator such as "Unknown" to the logic unit 126, or trigger the system to prompt the user to update the viewer image and profile databases. Because facial features of selected viewers tend to change over time, the pre-implementation process of photographing selected viewers may be repeated on a periodic basis or, in the alternative, upon recognition of a viewer, the system 128 preferably updates the viewer profile database to include current facial features.

[0038] Referring to Fig. 4A, operation of the logic unit 126 is explained in further detail. At step 130, the control signal CTRL generated by the logic unit 126 either indicates BLOCK or PASS. When the control signal CTRL indicates BLOCK, the signal blocking mechanism 115 blocks the program signal S_p 25 from being sent to the audio/video output device 108. For the purpose of the present invention, it should be understood that blocking the program signal S_p entails blocking at least one of the video, audio and captioning aspects of the program signal S_p . Preferably, however, all three of these aspects are blocked, such that the picture, sound and captioning will not be output from the audio/video output device 108. When the control signal CTRL indicates a

PASS, the signal blocking mechanism 115 sends the program signal S_P to the audio/video output device 108, such that the picture, sound and captioning are output.

[0039] At step 132, the logic unit 126 waits for a time queue from the clock 123, and upon receipt of the time queue, the logic unit 126 determines, as follows, whether the "V-chip" circuitry 102 has been enabled while the facial recognition system 128, at step 133, scans the viewing area. In particular, the logic unit 126 receives, at step 134, the current viewer indicator(s) V_I obtained from the facial recognition system 128 and the content-based indicators C_I obtained from the program signal S_P . The logic unit 126 then determines, at step 136, which viewing profiles are active by comparing the viewer indicator(s) V_I with the viewer specifications V_S 10 from the look up list 124. Alternatively, the logic unit 126 may encounter a viewer indicator V_I for an unknown or unrecognized viewer present in the viewing area whether the user would like to update the system databases. If the system administrator is present, the system administrator could update the system by entering the menu system discussed in regard to Fig. 5A.

- 15 [0040] With the active viewing profiles identified, wherein a viewer specification V_S corresponding to the viewer indicator V_I is selected, the logic unit 126, at steps 142 and 144, analyzes the content-based indicators C_I obtained from the program signal S_P vis-à-vis the content-based specifications C_S associated with the viewer specifications V_S . In the case of program ratings, if after comparing the content-based indicators C_I with the content-based specifications C_S it is found that any of the content-based indicator C_I 20 content-based specification C_S ratings (typically, there will be a maximum of two content-based specification C_S ratings — a television rating and a movie-rating), the logic unit 126, at step 140, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the "V-chip" circuitry 102 and blocking the program signal S_P to the audio/video output device 108. If the content-based indicators C_I ratings do not exceed the ratings of the content-based specifications C_S 25 with the viewer specifications V_S , the logic unit 126 goes to step 144 where it analyzes whether any of the subject matter categories of the content-based indicators C_I match any of the subject matter categories of the content-based specifications C_S associated with the viewer specifications V_S .

[0041] If after comparing the categories of the content-based indicators C_I with the categories of the content-based specifications C_S it is found that any of the content-based indicators C_I categories match any of the categories of the content-based specifications C_S associated with the viewer specifications V_S , the logic unit 126, at step 140, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the "V-chip" circuitry 102 and blocking the program signal S_P to the audio/video output device 108. If none of the categories of the content-based indicators C_I match any of the categories of the content-based specifications C_S associated with the viewer specifications V_S , the logic unit 126, at step 138, generates a pass control signal $CTRL_{PASS}$, thereby disabling the "V-chip" circuitry 102 and passing the program signal S_P to the audio/video output device 108. The logic unit 126 then proceeds to step 130, where the analysis process is repeated. The logic unit 126 performs the aforementioned steps by executing instructions that preferably take the form of computer software stored in the memory 122 or other suitable storage medium, such as, e.g., a ROM chip, or fixed logic, such as, e.g., an ASIC. However, it should be appreciated that the logic unit 126 could be configured to generate a pass signal if any of the categories of the content-based indicators C_I match the content-based specifications C_S and a block signal if there are no matches without straying from the principles taught by this invention.

[0042] Of course, the television system 100 may be configured, such that the "V-chip" circuitry 102 may be enabled or disabled independently from the viewer specifications V_S , and, as discussed in detail below, time range specifications T_S may be optionally operated in a standard analysis, i.e., public, mode, whereby the "V-chip" circuitry 102 can be enabled to automatically analyze the content-based indicators C_I vis-à-vis the content-based specifications C_S without regard to the viewer or time range; or disabled to automatically to pass the program signal S_P to the audio/video output device 108.

[0043] Programming of the viewing profiles, i.e., the viewer specifications V_S content-based specifications C_S , into the "V-chip" circuitry 102, and in particular the look-up list 124 of the non-volatile memory 122, is preferably effected through the use of a menu system 150, shown in Fig. 5A. As depicted, the menu system 150 includes an array of menus, which includes a main menu 151, a lock password entry screen 152, a "Lock" menu 153, a "Time Lock" menu 154, a "V-chip" main menu 155, a "Viewer Setup" menu 156, a "Viewer" menu

157, a television ratings menu 158, a movie ratings menu 160, and a subject matter categories menu 162.

[0044] The user entry system 116, and in particular the remote control unit 118 (shown in detail in Fig. 6), preferably is the operative device through which the user can interact with the menu system 150. The remote control unit 118 includes a menu key 166, adjust thumb disc 168, enter key 170 and numeric keys 172 to allow the user to input selected information via the menu system 150. Depression of the menu key 166 displays the main menu 151 of the menu system 150 when the television system 100 is in a home state (i.e., normal operation of the television system 100). If the main menu 151 is displayed, subsequent depression of the menu key 166 returns the user back to the home state. If one of the submenus is displayed, depression of the menu key 166 displays the previous menu. The adjust thumb disc 168 allows the user to scroll up, down, left or right within the menu system 150 to select a particular menu item. Depression of the enter key 170 allows the user to select a sub-menu or to enter a selected menu item into the non-volatile memory 122.

[0045] 15 Within the main menu 151, the user may select the "Parental Lock" menu item, which takes the user to the "Lock Password Entry Screen" 152. A password, preferably known only by the parents (adminstrator), is entered via the numeric keys 172. If the correct password is entered, the user is taken to the "Lock" menu 153. If an incorrect password is entered, the user is not taken to the "Lock" menu 153, and the words "try again" are displayed. In the "Lock" menu 20 153, the user can select the "V-Chip" selection to configure or disable the "V-chip" circuitry 102, the "Lock by Time" selection to alternatively enable or disable a complete lock of the TV based on the time of day, and the "Front Panel Lock" selection to alternatively enable or disable a lock of the front control panel of the TV. If the user selects "V-Chip", the user is taken to the "V-Chip" menu and can then select "Viewer" or "Public" to enable the "V-chip" circuitry 102 to 25 analyze the program signal with (viewer mode) or without (public mode) regard to individual viewers, or "Off" to disable the "V-chip" circuitry 102.

[0046] If "Public" is selected, the "V-chip" menu 155 can also be used to select the type of content-based specification C_s to be entered into the look-up list 124 and associated with a public viewer specification V_s to establish a viewing profile for all potential viewers. If 30 "Viewer" is selected, the user can then select "Viewer Setup" in the "V-Chip" menu 155 to be

taken to the "Viewer Setup" menu 156. In the "Viewer Setup" menu 156 the user can select "Scan Viewers" to use the facial recognition system 128 to photograph and enter new viewers into the system. The "Viewer Setup" menu 156 can also be used to select the type of content-based specification C_{st} to be entered into the look-up list 124 and associated with a viewer specification V_S 5 to establish a viewing profile for a selected viewer. In establishing profiles (public or individual viewers), the user can select TV RATINGS, MOVIE RATINGS, or CATEGORIES, to take the user respectively to the television ratings menu 158, movie ratings menu 160, or subject matter categories menu 162. Preferably, with regard to viewer mode, the menu system 150 requires the user to first select a viewer specification V_S from the viewer menu 157, and then a content-based specification C_S 10 associated

V_S . However, it should be appreciated that the menu system 150 can be configured to require selection of the content-based specification C_S followed by selection of the viewer specification V_S without straying from the principles taught by this invention.

[0047] Within the television ratings menu 158, the user can select a particular movie rating, 15 which prevents any program exceeding the selected television rating from being output from the audio/video output device 108. The television ratings can be selected from the following: OFF, TV-Y, TV-Y7, TV-G, TV-PG, TV-14 and TV-MA. A selection of OFF removes the previously selected content-based specification C_S television rating corresponding to the selected viewer specification V_S from the look-up list 124. A selection of any of the television ratings stores the selected television rating, as a content-based specification C_S 20 selected viewer specification V_S , in the look-up list 124. Since a selection of a particular rating is effectively also a selection of all ratings below the selected rating, a selection of TV-MA is effectively the same as selecting OFF. As will be described in further detail below, however, selection of TV-MA affects the selection of the subject matter categories.

[0048] 25 Within the movie ratings menu 160, the user can select a particular movie rating, which prevents any program exceeding the selected movie rating from being output from the audio/video output device 108. The movie ratings can be selected from the following: OFF, G, PG, PG-13, R, NC-17 and X. A selection of OFF removes the previously selected content-based specification C_S movie rating corresponding to the selected viewer specification from the 30 look-up list 124. A selection of any of the movie ratings stores the selected movie rating, as a

content-based specification C_S associated with the selected viewer specification V_S , in the look-up list 124. Selection of X is effectively the same as selecting OFF.

[0049] Within the subject matter categories menu 162, the user can select either to allow or block any program from being sent to the audio/video output device 108 when the program contains subject matter falling within the selected subject matter category. The subject matter categories can be selected from the following: FV (Fantasy Violence), D (Sexual Dialog), L (Adult Language), S (Sexual Situations), V (Violence) and Non-Rated Programs. A selection to allow a particular category, removes the content-based specification C_S corresponding to that category associated with the selected viewer specification V_S from the look-up list 124.

Conversely, a selection to block a particular category stores the selected category, as a content-based specification C_S associated with the selected viewer specification V_S , in the look-up list 124.

[0050] As currently dictated by the FCC, certain subject matter categories can be selected only if certain television ratings have been selected. For instance, category FV can only be selected if TV-Y7 has been selected. Category D can only be selected if TV-PG or TV-14 has been selected. Categories L, S and V can only be selected if TV-PG, TV-14 or TV-MA has been selected. Thus, the selection of categories enhances the television rating selected by the user. For instance, if television rating TV-14 and category S is selectively allowed, then all programs rated TV-MA are blocked and all programs containing sexual situations are blocked. Thus, the discretionary aspect of a selected television rating can be supplemented by further selecting a subject matter category. As can be appreciated any permeatation of ratings and subject matter category may be used as a result. For example, (see Fig. 7) the following combinatory content-based specifications C_S can be created: TV-Y7 FV, TV-PG D, TV-PG L, TV-PG S, TV-PG V, TV-14 D, TV-14 L, TV-14 S, TV-14 V, TV-MA L, TV-MA S, TV-MA V, TV-PG_D_S, TV-PG_D_L, TV-PG_D_V, TV-PG_D_L_S, TV-PG_D_L_V, TV-PG_D_L_S_V, TV-14_D_S, TV-14_D_L, TV-14_D_V, TV-14_D_L_S, TV-14_D_S_V, TV-14_D_L_V, TV-14_D_L_S_V, TV-MA_L_S, TV-MA_S_V, TV-MA_L_V, TV-MA_L_S_V, etc. Some programs, such as, e.g., news and sports, are not rated or are un-rated. In this case, the user can select to allow all non-rated programs or block all non-rated programs. If the TV rating is OFF, non-rated programs cannot be selected.

[0051] Turning to the figures 3B, 4B and 5B, a detailed discussion of an alternate embodiment of the media rating enforcement system and method of the present invention is provided. Fig. 3B shows a schematic representation of a consumer electronics system 200 that is substantially the same as the consumer electronics system 100 shown in Fig. 3A with the exception of the inclusion of time range specifications T_S 5 listed in the look up list:

222. As with the consumer electronics system 100 shown in Fig. 3A, the consumer electronics system 200 is not to be limited to a television system, but can include any type of system that receives information that a parent might find objectionable, such as, e.g., a video cassette recorder (VCR), audio equipment and computer equipment. In general, the television system 200 receives a television program signal S_{TV10} , and absent it viewer in the form of audio/visual information. The television system 200 includes "V-chip" circuitry 202 that can be programmed by a user, such as, e.g., a parent, to selectively limit exposure of any programs to children that the user feels contain inappropriate subject matter. In particular, the "V-chip" circuitry 202 can be programmed to block the program signal S_P if the 15 content and time of the program meet certain criteria selected by the user for a particular viewer present in the viewing area and identified by a facial recognition 228.

[0052] In this connection, the television system 200 includes a tuner 204, which receives the television signal S_{TV} , and, under the control of a channel selector 206, provides a program signal S_P at an output. The television system 200 further includes an audio/visual output device 208, which transforms the program signal S_P 20 into the program in the screen 210 and sound from a speaker 212.

[0053] The "V-chip" circuitry 202 of the television system 200 includes a signal blocking mechanism 215, which is coupled to the output of the tuner 204 to receive the program signal S_P and to selectively pass and block the program signal S_P , or, in the alternative, pass and scramble the program signal S_P . In this particular embodiment, the program signal S_P 25 information required to provide the program to the viewer and one or more content-based indicators C_i , but also timing information T_i . The timing information T_i indicates a reference time, such as, e.g., the current time.

[0054] The content-based indicators C_i and timing information T_i are incorporated into the program signal S_P 30, preferably using an extended data service (XDS or EDS) system.

appreciated by those skilled in the art that the content-based indicators C_1 and timing information T_1 can originate from any source dependent or independent of the program signal S_P . For instance, the content-based indicators C_1 and timing information T_1 can be supplied by the Program Status Information Protocol (PSIP) or an Electronic Program Guide (EPG). The timing information T_1 5 can also originate from within the television system 200 via a user setting.

"V-chip" circuitry 202 further includes a data extraction device 214, which is coupled to output of the tuner 204 to receive the program signal S_P and obtain from it XDS information, namely, the content-based indicators C_1 and the timing information T_1 .

[0055] A user entry system 216, typically embodied in a remote control unit 218 and a 10 corresponding remote receiver 220, is the mechanism by which a user inputs one or more viewer specifications V_S , one or more finite time range specifications T_S and one or more content-based specifications C_S associated with the viewer specifications V_S and finite time range specifications T_S . The finite time range specifications T_S are the time ranges during which the user wishes to limit the content of any program in relation to a particular viewer. The "V-chip" circuitry 202 15 includes non-volatile memory 222, which is coupled to the program entry system 216 for receiving and storing the viewer specifications V_S and associated content-based specifications C_S and finite time range specifications T_S as viewing profiles in a look-up list 224. Preferably, the non-volatile memory 222 is embodied in Flash Memory or an EEPROM.

[0056] The "V-chip" circuitry 202 further includes a logic unit 226 to generate either a block control signal $CTRL_{BLOCK}$ 20, which causes the signal blocking mechanism 215 to block the program signal S_P from being passed effectively to the audio/video output device 208, or a pass control signal $CTRL_{PASS}$, which permits the program signal S_P to be passed via the signal blocking mechanism 215 to the audio/video output device 208. The logic unit 226 is coupled to the output of the data slicer 214 to receive the extracted content-based indicators C_1 and the current time T_1 , the non-volatile memory 222 to receive the viewer specifications V_S 25 range specifications T_S and associated content-based specifications C_S and the facial recognition system 228 to receive viewer indicators V_1 indicative of the viewers present in the viewing area. The logic unit 226 compares the viewer indicators V_1 with the viewer specifications V_S to determine the active viewing profiles, the current time T_1 falls with the associated finite time range specifications T_S 30 of the active viewing profiles to determine the active fi

specifications T_s , then the content-based indicators C_i with the content-based specifications C_s of the active viewing profile associated with the active time range specifications T_s , and generates a control signal CTRL in response thereto, which either constitutes a block control signal CTRL_{BLOCK} or a pass control signal CTRL_{PASS}. The logic unit 226 is coupled to a
5 clocking signal clock, which allows the control signal CTRL to be periodically updated.

[0057] The facial recognition system 228 includes a digital video camera 227 coupled to a dedicated computer or CPU 225, or, in the alternative, a CPU of the viewing device. The CPU 225 preferably runs facial recognition software known in the art while the camera 227 continuously scans the entire viewing area associated with the television system 200. The facial
10 recognition system 228 further comprises nonvolatile memory 229 used for storage of image libraries associated with individual viewers. Prior to implementation, all likely viewers, e.g., all members of a family, are photographed from several different angles by the system 228 using the digital video camera 227, or other digital camera from which the images can be downloaded into the memory 229 of the system 228. When stored, the digital images comprising the facial
15 features of individual viewers are associated with an individual viewers name, age or the like. When the facial features are recognized by the system 228, viewer indicators V_i are sent to the logic unit 226 of the enforcement circuitry 202. When not recognized, the facial features may trigger the transmission of a "default" viewer indicator such as "UNKNOWN" to the logic unit 226, or trigger the system to prompt the user to update the viewer image and profile databases.

[0058] 20 Referring to Fig. 4B, operation of the logic unit 226 is explained in further detail. At step 230, the control signal CTRL generated by the logic unit 226 either indicates BLOCK or PASS. At step 232, the logic unit 226 waits for a time queue from the clock signal clock 223, and upon receipt of the time queue, the logic unit 226 determines, as follows, whether the "V-chip" circuitry 202 has been enabled while the facial recognition system 228, at step 233, scans the
25 viewing area. In particular, the logic unit 226 receives, at step 234, the current viewer indicator(s) V_i obtained from the facial recognition system 228 at step 233, the viewer specifications V_{sobt} ained from the look-up list 224, the current time T_i obtained from the program signal S_p and the current content-based indicator C_i obtained from the program signal S_p . The logic unit 226 then determines, at step 236, which viewing profiles are active by comparing the viewer indicator(s) V_i with the viewer specifications V_{s30}

[0059] With the active viewing profiles identified, wherein a viewer specification V_s corresponding to the viewer indicator V_1 is selected, the logic unit 226 then determines, at step 237, which time range specifications T_s are active by comparing the current time T_1 with any of the selected time range specifications T_s . Dependent on whether the current time T_1 does or does not fall within any of the selected time range specifications T_s

analyzes the content-based indicators C_1 obtained from the program signal S_p vis-à-vis default content-based specifications C_s associated with the viewer specifications V_s for all times not within selected finite time range specifications T_s or vis-à-vis content-based specifications C_s associated with the viewer specifications V_s and selected time range specifications T_s . In the case of program ratings, if after comparing the content-based indicator C_1

specification C_s it is determined that any of the content-based indicators C_1 ratings are determined to exceed any of the content-based specification C_s ratings (typically, there will be a maximum of two content-based specification C_s ratings — a television rating and a movie rating), the logic unit 226, at step 240, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the “V—chip” circuitry 202 and blocking the program signal S_p

output device 208. If the ratings of the content-based indicators C_1 do not exceed the any of the ratings of the default content-based specifications C_s associated with the viewer specifications V_s and do not exceed any of the content-based specifications C_s associated with the viewer specifications V_s and selected time range specifications T_s , the logic unit 226 goes to step 244 where it analyzes whether any of the content-based indicators C_1

content-based specifications C_s associated with the viewer specifications V_s and match any of the content-based specifications C_s associated with the viewer specifications V_s and determined time range specifications T_s .

[0060] If after comparing the content-based indicators C_1 with the content-based specifications C_s it is determined that any of the ratings of the content-based indicators C_1 default content-based specifications C_s associated with the viewer specifications V_s or match any of the ratings of the content-based specifications C_s associated with the viewer specifications V_s and determined time range specifications T_s , the logic unit 226, at step 240, generates a block control signal $CTRL_{BLOCK}$, thereby enabling the “V—chip” circuitry 202 and blocking the program signal S_p

to the audio/video output device 208. If none of the content-based

C_1 match any of the default content-based specifications C_S associated with the viewer specifications V_S or match any of the content-based specifications C_S associated with the viewer specifications V_S and determined time range specifications T_S , the logic unit 226, at step 238, generates a pass control signal $CTRL_{PASS}$, thereby disabling the "V-chip" circuitry 202 and passing the program signal S_P 5 to the audio/video output device 208. Th

proceeds to step 230, where the analysis process is repeated. However, it should be appreciated that the system 202 could be configured such that the logic unit 226, at step 238, generates a pass control signal $CTRL_{PASS}$, thereby disabling the "V-chip" circuitry 202 and passing the program signal S_P to the audio/video output device 208 when the logic unit 226, at step 242, determines

- 10 that content-based indicators C_1 do not exceed any of the content-based specifications C_S without straying from the principles taught by this invention. It should also be appreciated that the logic unit 126 could be configured to generate a pass signal if any of the categories of the content-based indicators C_1 match any of the categories of the content-based specifications C_S and a block signal if there are no matches without straying from the principles taught by this
15 invention.

[0061] Programming of the viewing profiles, i.e., the viewer specifications V_S and associated content-based specifications C_S and finite time range specifications T_S into the "V-chip" circuitry 202, and in particular the look-up list 224 of the non-volatile memory 222, is preferably effected through the use of a menu system 250, shown in Fig. 5B. As depicted, the menu system
20 250 includes an array of menus, which includes a main menu 251, a lock password entry screen 252, a "Lock" menu 253, a "Time Lock" menu 254, a "V-chip" main menu 255, a "Viewer Setup" menu 256, a "Viewer" menu 257, a television ratings menu 258, a movie ratings menu 260, and a subject matter categories menu 262, and a "V-Chip Time" menu 264.

[0062] The user entry system 216, and in particular the remote control unit 218 (shown in detail
25 in Fig. 6), preferably is the operative device through which the user can interact with the menu system 250. Within the main menu 251, the user may select the "Parental Lock" menu item, which takes the user to the "Lock Password Entry Screen" 252. A password, preferably known only by the parents (administrator), is entered via the numeric keys 172. If the correct password is entered, the user is taken to the "Lock" menu 253. If an incorrect password is entered, the user is
30 not taken to the "Lock" menu 253, and the words "try again" are displayed. In the "Lock" menu

253, the user can select the "V-Chip" selection to configure or disable the "V-chip" circuitry 202, the "Lock by Time" selection to alternatively enable or disable a complete lock of the TV based on the time of day, and the "Front Panel Lock" selection to alternatively enable or disable a lock of the front control panel of the TV. If the user selects "V-Chip", the user is taken to the
5 "V-Chip" menu and can then select "Viewer" or "Public" to enable the "V-chip" circuitry 202 to analyze the program signal with (viewer mode) or without (public mode) regard to individual viewers, or "Off" to disable the "V-chip" circuitry 202.

[0063] If "Public" is selected, the "V-chip" menu 255 can also be used to select the type of content-based specification C_S and time range specifications T_S to be entered into the look-up list 224 and associated with a public viewer specification V_S 10

for all potential viewers. If "Viewer" is selected, the user can then select "Viewer Setup" in the "V-Chip" menu 255 to be taken to the "Viewer Setup" menu 256. In the "Viewer Setup" menu 256 the user can select "Scan Viewers" to use the facial recognition system 228 to photograph and enter new viewers into the system. The "Viewer Setup" menu 256 can also be used to select the type of content-based specification C_S and time range specifications T_S 15

look-up list 224 and associated with a viewer specification V_S to establish a viewing profile for a selected viewer. In establishing viewer profiles (public or individual viewers), the user can select TV RATINGS, MOVIE RATINGS, or CATEGORIES, to take the user respectively to the television ratings menu 258, movie ratings menu 260, or subject matter categories menu 262.

20 Preferably, with regard to viewer mode, the menu system 250 requires the user to first select a viewer specification V_S from the viewer menu 257, and then content-based specification C_S associated with the selected viewer specification V_S and time range specifications T_S from the time range menu 264 associated with the selected content-based specification C_S and viewer specification V_S from the time range menu 264. However, it should be appreciated that the
25 menu system 250 can be configured to require selection of the time range specification T_S followed by selection of the content-based specification C_S and viewer specification V_S without straying from the principles taught by this invention.

[0064] Within the television ratings menu 258, the user can select a particular movie rating, which prevents any program exceeding or, in the alternative, matching or exceeding, the selected
30 television rating from being output from the audio/video output device 208. The television

ratings can be selected from the following: OFF, TV-Y, TV-Y7, TV-G, TV-PG, TV-14 and TV-MA. A selection of OFF removes the previously selected content-based specification C_S television rating and time range(s) corresponding to the selected viewer specification V_S from the look-up list 224. A selection of any of the television ratings stores the selected television rating, as a content-based specification C_{S5} , in the look-up list 224. Since rating is effectively also a selection of all ratings below the selected rating, a selection of TV-MA is effectively the same as selecting OFF. As will be described in further detail below, however, selection of TV-MA affects the selection of the subject matter categories.

[0065] Within the movie ratings menu 260, the user can select a particular television rating, 10 which prevents any program exceeding or, in the alternative, matching or exceeding, the selected movie rating from being output from the audio/video output device 208. The movie ratings can be selected from the following: OFF, G, PG, PG-13, R, NC-17 and X. A selection of OFF removes the previously selected content-based specification C_S movie rating and time range(s) corresponding to the selected viewer specification V_S from the look-up list 224. A selection of any of the movie ratings stores the selected movie rating, as a content-based specification C_{S15} the look-up list 224. Selection of X is effectively the same as selecting OFF.

[0066] Within the subject matter categories menu 262, the user can select either to allow or block any program from being sent to the audio/video output device 208 when the program contains subject matter falling within the selected subject matter category. The subject matter 20 categories can be selected from the following: FV (Fantasy Violence), D (Sexual Dialog), L (Adult Language), S (Sexual Situations), V (Violence) and Non-Rated Programs. A selection to allow a particular category, removes the content-based specification C_S corresponding to that category from the look-up list 224. Conversely, a selection to block a particular category stores the selected category, as a content-based specification C_S , in the look-up list 224.

[0067] After a particular content-based specification C_S 25

“V-Chip Time” range menu 264 wherein the user can define one or more time range specifications T_S to be associated with the selected content-based specification C_S . The time range specification T_S can be defined by entering a time into the START TIME entry and entering a time into the STOP TIME entry. The defined time range specification T_S is then entered in the look-up list 224. Another time range specification T_S 30

content-based specification C_S can be defined by again entering times into the START TIME and STOP TIME entries. If the START and STOP TIMES are the same, the time range will be a 24 hour period. Preferably, the time range specification T_S defined can be applied to each work day of the week (M-F) or to the weekends. This can be accomplished by selecting either the 5 WEEKDAY (M-F) or the WEEKEND (S-S) after selection of the time range.

[0068] While preferred methods and embodiments have been shown and described, it will be apparent to one of ordinary skill in the art that numerous alterations may be made without departing from the spirit or scope of the invention. Therefore, the invention is not to be limited except in accordance with the following claims.

What is claimed:

<METHOD CLAIM SET>

1. A method of supervising personal exposure to a consumer electronics device, the
5 method comprising:
receiving a program signal suitable for conversion by the consumer electronics device
into user discernible information;
receiving a viewer indicator indicative of a viewer present in a viewing area
corresponding to the consumer electronics device;
10 comparing the viewer indicator with viewer specifications to identify a viewing profile
associated with the viewer present in the viewing area;
receiving a content-based indicator indicative of the content of the user discernible
information;
comparing the content-based indicator with content-based specifications of the viewing
15 profile;
and
generating a control signal based on the comparison between content-based indicator and
content-based specifications.
2. The method of claim 1 further comprising the steps of
20 scanning the viewing area for the presence of viewers; and
generating a viewer indicator.
3. The method of claim 2 further comprising the step of comparing scanned images
of a viewer with stored images of selected individuals.
4. The method of claim 3 further comprising the step of storing images of selected
25 individuals.
5. The method of claim 4 further comprising the step of photographing selected
individuals.
6. The method of claim 1 further comprising the steps of:
receiving viewer specifications;
30 selecting a viewer specification corresponding to the received viewer indicator; and

receiving content-based specifications corresponding to the viewer specification.

7. The method of claim 1, further comprising the step of extracting the content-based indicator from the program signal.

8. The method of claim 1, wherein the content-based indicator and the content-based specification is a rating.

9. The method of claim 8, wherein the control signal is generated if the content-based indicator rating exceeds the content-based specification rating.

10. The method of claim 1, wherein the content-based indicator and the content-based specification is a subject matter category.

11. The method of claim 10, wherein the control signal is generated if the content-based indicator category matches the selected content-based category.

12. The method of claim 1, further comprising the step of impairing the program signal in response to the control signal.

13. The method of claim 12, wherein the program signal is blocked in response to the control signal.

14. The method of claim 1, wherein the consumer electronics device is a television system and the user discernible information comprises audio/video information.

15. The method of claim 1 further comprising the steps of receiving timing information indicative of a reference time; and

selecting a time range specification corresponding to the timing information.

16. The method of claim 15 further comprising the steps of receiving viewer specifications;

selecting a viewer specification corresponding to the viewer indicator; and

receiving content-based specifications corresponding to the selected viewer specification and the selected time range specifications.

17. The method of claim 16 further comprising the step of comparing the content-based indicator with content-based specifications corresponding to the selected viewer and time range specifications.

18. The method of claim 15, further comprising the step of extracting the content-based indicator and the timing information from the program signal.

19. The method of claim 15, further comprising the step of generating the timing information within the consumer electronics device.

20. The method of claim 15, wherein the reference time indicated by the timing information is the current time.

5 21. The method of claim 1 further comprising the steps of
entering a viewer specification corresponding to a selected viewer or group of viewers;
and
entering a content-based specification corresponding to the viewer specification.

22. The method of claim 21 further comprising the step of entering a finite time range
10 specification corresponding the viewer and content-based specifications.

23. A method of supervising the exposure to a consumer electronics device, the method comprising:

receiving a program signal suitable for conversion by the consumer electronics device into user discernible information;

15 receiving a viewer indicator indicative of a viewer present in a viewing area corresponding to the consumer electronics device;

receiving viewer specifications corresponding to selected viewers;

comparing the viewer indicator with the viewer specifications to identify a viewing profile associated with one of the selected viewers present in the viewing area;

20 selecting a viewer specification corresponding to the viewer indicator;

receiving a first selected content-based rating corresponding to the selected viewer specification;

receiving a content-based program rating indicative of the content of the user discernible information;

25 comparing the first selected content-based rating with the content-based program rating;
and

impairing the program signal if the content-based program rating exceeds the first selected content-based rating.

24. The method of claim 23, wherein the program signal is impaired by scrambling
30 the program signal.

25. The method of claim 23, wherein the program signal is impaired by blocking the program signal.

26. The method of claim 23, wherein the selected time range specification repeats for each day of a workweek.

5 27. The method of claim 23, further comprising:

receiving a second selected content-based rating corresponding to the selected viewer specification and different from the first selected content-based rating;

comparing the second selected content-based rating with the content-based program rating; and

10 impairing the program signal if the content-based program rating exceeds the second selected content-based rating.

28. The method of claim 23 further comprising the steps of
scanning the viewing area for the presence of viewers; and
generating a viewer indicator.

15 29. The method of claim 28 further comprising the step of comparing scanned images of a viewer with stored images of selected individuals.

30. The method of claim 23, further comprising the step of extracting the content-based program rating from the program signal.

31. The method of claim 23 further comprising the steps of

20 receiving timing information indicative of a reference time; and
selecting a first time range specification corresponding to the timing information.

32. The method of claim 31 wherein the step of receiving a first selected content-based rating comprising receiving a first selected content-based rating corresponding to the selected viewer specification for the selected first time range specification.

25 33. The method of claim 32, further comprising the step of extracting the content-based rating and the timing information from the program signal.

34. The method of claim 33, further comprising the step of generating the timing information within the consumer electronics device.

35. The method of claim 34 further comprising the steps of

30 entering a viewer specification corresponding to a selected viewer or group of viewers;

entering a content-based rating corresponding to the viewer specification; and
entering a finite time range specification corresponding the viewer and content-based specifications.

5 <SYSTEM CLAIM SET>

1. A consumer electronics device having media supervision enforcement circuitry for supervising personal exposure to user discernible information, comprising:

 a first logic unit configured for generating viewer indicators indicative of viewers present in a viewing area;

 10 non-volatile memory configured for receiving viewing profiles for selected viewers;

 a second logic unit coupled to the first logic unit and the non-volatile memory and being configured for comparing a viewer indicator with viewing profiles to identify an active viewing profile and a content-based indicator with the active viewing profile, the second logic unit being further configured for generating a control signal in response to the comparison between the

15 content-based indicator and the viewing profiles; and

 a signal impairment mechanism coupled to the logic unit and configured for, based on the control signal, selectively passing a program signal therethrough without substantial impairment or passing the program signal therethrough with substantial impairment.

2. The consumer electronics device of claim 1 wherein each of the viewing profiles
20 comprises a viewer specification and a content-based specification corresponding to the viewer specification;

3. The consumer electronics device of claim 2, further comprising an output device coupled to the signal impairment mechanism for transforming the program signal into the user discernible information.

25 4. The consumer electronics device of claim 1, further comprising a data entry system for selectively inputting the viewer and content-based specifications into the non-volatile memory for storage.

5. The consumer electronics device of claim 1, wherein the non-volatile memory includes a look-up list for storing a plurality of viewer specification and associated content-
30 based specifications.

6. The consumer electronics device of claim 1, wherein the program signal carries the content-based indicator, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator.

7. The consumer electronics device of claim 1, wherein the signal impairment device
5 is a switch.

8. The consumer electronics device of claim 1, wherein the output device is a television system audio/video output device.

9. The consumer electronics device of claim 1, wherein the first logic unit is a computer configured to run facial recognition software.

10 10. The consumer electronics device of claim 1, further comprising a camera coupled to the first logic unit and configured to continuously scan the viewing area associated with the consumer electronic device.

11. The consumer electronics device of claim 1 wherein each of the viewing profiles comprises a viewer specification, a finite time range specification and a content-based
15 specification corresponding to the viewer and time range specifications.

12. The consumer electronics device of claim 1, further comprising a data entry system for selectively inputting the viewer, time range and content-based specifications into the non-volatile memory for storage.

13. The consumer electronics device of claim 1, wherein the non-volatile memory
20 includes a look-up list for storing a plurality of viewer specification and associated time range and content-based specifications.

14. The consumer electronics device of claim 1, wherein the program signal carries the content-based indicator and timing information, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator and timing
25 information.

15. A recordable medium comprising:
a computer program comprising steps for:
receiving a program signal suitable for conversion by a consumer electronics device into user discernible information;

receiving a content-based indicator indicative of the content of the user discernible information;

receiving a viewer indicator indicative of a viewer present in a viewer area;

selecting a viewer specification associated with the viewer indicator;

5 selecting a content-based specification associated with the selected viewer specification;

comparing the selected content-based specification with received content-based indicator; and

generating a control signal based on the comparison between the selected content-based specification and the received content-based indicator.

10 16. The recordable medium of claim 15, wherein each of the received content-based indicator and the selected content-based specification is a rating.

17. The recordable medium of claim 16, wherein the control signal is generated if the received content-based rating exceeds the selected content-based rating.

18. The recordable medium of claim 15, wherein each of the received content-based
15 indicators and the selected content-based specifications is a subject matter category.

19. The recordable medium of claim 18, wherein the control signal is generated if the received content-based category matches the selected content-based category.

20. The recordable medium of claim 15, wherein the control signal is generated to impair the program signal.

20 21. The recordable medium of claim 15, wherein the computer program further comprises the steps of

receiving timing information indicative of a reference time;

selecting a finite time range specification associated with the timing information;

25 selecting a content-based specification associated with the selected viewer and time range specifications.

22. A device having comprising:

a viewer monitoring system;

non-volatile memory for receiving viewing profiles of selected viewers;

a logic unit coupled to the viewer monitoring system and the non-volatile memory and

30 being configured for comparing a viewer indicator with viewing profiles to identify an active

viewing profile and a content-based indicator with the active viewing profile, the logic unit being further configured for generating a control signal in response to the comparison between the content-based indicator and the viewing profiles; and

a signal impairment mechanism coupled to the logic unit and configured for, based on the
5 control signal, selectively passing a program signal therethrough without substantial impairment or passing the program signal therethrough with substantial impairment.

23. The device of claim 22 wherein the viewer monitoring system comprising a facial recognition system.

24. The device of claim 23 wherein the facial recognition system comprises a
10 computer configured to run a facial recognition program and a camera coupled to the computer.

25. The device of claim 22 wherein each of the viewing profiles comprises a viewer specification and a content-based specification corresponding to the viewer specification.

26. The device of claim 22, further comprising an output device coupled to the signal impairment mechanism for transforming the program signal into the user discernible
15 information.

27. The device of claim 22, further comprising a data entry system for selectively inputting the viewer and content-based specifications into the non-volatile memory for storage.

28. The device of claim 22, wherein the non-volatile memory includes a look-up list for storing a plurality of viewer specifications and associated content-based specifications.

20 29. The consumer electronics device of claim 22, wherein the program signal carries the content-based indicator, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator.

30. The consumer electronics device of claim 22, wherein the signal impairment device is a switch.

25 31. The consumer electronics device of claim 22, wherein the output device is a television system audio/video output device.

32. The consumer electronics device of claim 22 wherein each of the viewing profiles comprises a viewer specification, a finite time range specification and a content-based specification corresponding to the viewer and time range specifications.

33. The consumer electronics device of claim 22, further comprising a data entry system for selectively inputting the viewer, time range and content-based specifications into the non-volatile memory for storage.

34. The consumer electronics device of claim 22, wherein the non-volatile memory
5 includes a look-up list for storing a plurality of viewer specifications and associated time range and content-based specifications.

35. The consumer electronics device of claim 23, wherein the program signal carries the content-based indicator and timing information, and further comprising a data extraction device coupled to the logic unit for extracting the content-based indicator and timing
10 information.

ABSTRACT

Systems, methods and apparatuses are provided for allowing a user to supervise personal exposure to a program exhibited by a consumer electronics device, such as, e.g., a television system. The consumer electronics device includes a facial recognition system and media rating enforcement circuitry that analyzes a program signal and either blocks or passes the program signal based on certain content and viewer based criteria and also, in the alternative, time based criteria. In this connection, a user can program the enforcement circuitry with the content and viewer based criteria in the form of one or more viewing profiles comprising viewer specifications and content-based specifications associated with the viewer specifications, and, which specify a rating and/or a subject matter category. The enforcement circuitry receives one or more viewer indicators from a facial recognition system that are indicative of the viewers present in a viewing area and one or more content-based indicators, which are indicative of a rating and/or a subject matter category of the program. The enforcement circuitry compares the viewer indicators with the viewer specifications and then the content-based indicators with the content-based specifications. Based on this comparison, the enforcement circuitry either passes the program signal to an output device for transformation of the program signal into the program or blocks the program signal from being sent to the output device.

Roberts, Kenneth S.

From: Roberts, Kenneth S.
Sent: Thursday, August 28, 2003 8:34 AM
To: 'PStecyk@mdea.com'
Subject: Re: 705397.53 Passive Enforcement

P- great. I will get a final draft to you with any highlighted changes. Ken

-----Original Message-----

From: Stecyk, Polly <PStecyk@mdea.com>
To: Roberts, Kenneth S. <kroberts@Orrick.com>
Sent: Thu Aug 28 08:00:20 2003
Subject: RE: 705397.53 Passive Enforcement

Ken,

OK - you understand and I guess my legalize is suspect. I think it's fine. Thanks, polly

-----Original Message-----

From: Roberts, Kenneth S. [mailto:kroberts@Orrick.com]
Sent: Wednesday, August 27, 2003 8:54 PM
To: Stecyk, Polly
Subject: Re: 705397.53 Passive Enforcement

Polly - I am pretty sure this is the way I already had paragraphs 40 and 41

written. Para 40 and 41 note that if the program rating exceeds the spec rating, the program is blocked. However, if the program rating does not exceed the spec rating the logic unit compares the program category to the spec category. If there is a match, the program is blocked. Please take a second look at these paragraphs and let me know where you think I am deviating from your explanation below. Thanks.

As to matter 15, I am pretty sure I am still arguing with the examiner. I'll check it out and get back to you tomorrow.

Call if you think that will help me understand.

Ken

-----Original Message-----

From: Stecyk, Polly <PStecyk@mdea.com>
To: Roberts, Kenneth S. <kroberts@Orrick.com>
Sent: Wed Aug 27 16:58:50 2003
Subject: RE: 705397.53 Passive Enforcement

Ken,

Yes, category data is independent of the TV rating. Category data is way to further restrict viewing. If the rating includes category data then the program blocks regardless of the TV rating. Example. The parent sets the TV rating at TV-14 (meaning TV-MA is blocked, all others TV ratings are available) and selects V as blocked, no violence for their kids. A program rated at TV-PG V will block even though a TV-PG program is OK because the V bit causes the block.

If hope this helps. If you have any other questions, please let me know.

Regarding the first V-Chip patent from 1999 (docket # 705397.15), has this been effectively denied or is it still in the "let's avoid a patent" mill typical of the patent office?

Thanks, polly

-----Original Message-----

From: Roberts, Kenneth S. [mailto:kroberts@Orrick.com]
Sent: Wednesday, August 27, 2003 4:23 PM
To: Stecyk, Polly
Subject: RE: 705397.53 Passive Enforcement

Polly - See below. Ken

-----Original Message-----

From: Stecyk, Polly [mailto:PStecyk@mdea.com]
Sent: Friday, August 01, 2003 9:42 AM
To: Roberts, Kenneth S.
Subject: RE: 705397.53 Passive Enforcement

Ken,

Sorry for the delay. Very busy with deadlines here. My comments. If you have questions, please let me know.

Thanks, polly

Page 1, line 25. The description may lead to the conclusion that category data is a sufficient rating data but that would be incorrect. Category data can only further restrict the V-Chip ratings of TV-Y7, TV-PG, TV-14, TV-MA as per fig. 7. I would not recommend stating "adult/foul language". The term is actually "adult language". I am revising accordingly.

Page 6, line 25. "an system" should be "a system" corrected

Page 8, line 30. Same concern about category data dependence upon V-Chip ratings. Similar revision.

Page 12, line 21. Category data works this way. V-Chip setting is TV-14 with V category data. This means that programs TV-Y, TV-Y7, TV-G, TV-PG and TV-14 can all be viewed. If a TV-PG or TV-14 program has a V category bit, then the program is blocked. All TV-MA programs are also blocked.
Just

for your info, what constitutes V for TV-MA will be more violent than for TV-PG because TV-MA programming is more mature and has adult content.

In summary, category data further restricts the V-Chip rating. When the program and the selected category data match then the program is blocked even if the V-Chip setting is permitted.

If I understand you, the problem with paragraph 41 is that the category data is not dependent on the ratings. I will revise accordingly. Please confirm this is or is not correct.

Page 13, line 2 -5. Not exactly: see the previous comment. Same as above. Please confirm.

Figure 7. Missing TV-G (should be between TV-Y7 and TV-PG) with no applicable category data. Corrected.

"MMS <Orrick.com>" made the following annotations.

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<http://www.orrick.com>
=====

"MMS <Orrick.com>" made the following annotations.

NOTICE TO RECIPIENT: THIS E-MAIL IS MEANT FOR ONLY THE INTENDED RECIPIENT OF THE TRANSMISSION, AND MAY BE A COMMUNICATION PRIVILEGED BY LAW. IF YOU RECEIVED THIS E-MAIL IN ERROR, ANY REVIEW, USE, DISSEMINATION, DISTRIBUTION, OR COPYING OF THIS E-MAIL IS STRICTLY PROHIBITED. PLEASE NOTIFY US IMMEDIATELY OF THE ERROR BY RETURN E-MAIL AND PLEASE DELETE THIS MESSAGE FROM YOUR SYSTEM. THANK YOU IN ADVANCE FOR YOUR COOPERATION.
<http://www.orrick.com>
=====

Roberts, Kenneth S.

From: Stecyk, Polly [PStecyk@mdea.com]
Sent: Thursday, August 28, 2003 8:00 AM
To: Roberts, Kenneth S.
Subject: RE: 705397.53 Passive Enforcement

Ken,

OK - you understand and I guess my legalize is suspect. I think it's fine. Thanks, polly

-----Original Message-----

From: Roberts, Kenneth S. [mailto:kr Roberts@Orrick.com]
Sent: Wednesday, August 27, 2003 8:54 PM
To: Stecyk, Polly
Subject: Re: 705397.53 Passive Enforcement

Polly - I am pretty sure this is the way I already had paragraphs 40 and 41

written. Para 40 and 41 note that if the program rating exceeds the spec rating, the program is blocked. However, if the program rating does not exceed the spec rating the logic unit compares the program category to the spec category. If there is a match, the program is blocked. Please take a second look at these paragraphs and let me know where you think I am deviating from your explanation below. Thanks.

As to matter 15, I am pretty sure I am still arguing with the examiner. I'll check it out and get back to you tomorrow.

Call if you think that will help me understand.

Ken

-----Original Message-----

From: Stecyk, Polly <PStecyk@mdea.com>
To: Roberts, Kenneth S. <kr Roberts@Orrick.com>
Sent: Wed Aug 27 16:58:50 2003
Subject: RE: 705397.53 Passive Enforcement

Ken,

Yes, category data is independent of the TV rating. Category data is way to further restrict viewing. If the rating includes category data then the program blocks regardless of the TV rating. Example. The parent sets the TV rating at TV-14 (meaning TV-MA is blocked, all others TV ratings are available) and selects V as blocked, no violence for their kids. A program rated at TV-PG V will block even though a TV-PG program is OK because the V bit causes the block.

If hope this helps. If you have any other questions, please let me know.

Regarding the first V-Chip patent from 1999 (docket # 705397.15), has this been effectively denied or is it still in the "let's avoid a patent" mill typical of the patent office?

Thanks, polly

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From: Roberts, Kenneth S. [mailto:kroberts@Orrick.com]

Sent: Wednesday, August 27, 2003 4:23 PM

To: Stecyk, Polly

Subject: RE: 705397.53 Passive Enforcement

Polly - See below. Ken

-----Original Message-----

From: Stecyk, Polly [mailto:PStecyk@mdea.com]

Sent: Friday, August 01, 2003 9:42 AM

To: Roberts, Kenneth S.

Subject: RE: 705397.53 Passive Enforcement

Ken,

Sorry for the delay. Very busy with deadlines here. My comments. If you have questions, please let me know.

Thanks, polly

Page 1, line 25. The description may lead to the conclusion that category data is a sufficient rating data but that would be incorrect. Category data can only further restrict the V-Chip ratings of TV-Y7, TV-PG, TV-14, TV-MA as per fig. 7. I would not recommend stating "adult/foul language". The term is actually "adult language". I am revising accordingly.

Page 6, line 25. "an system" should be "a system" corrected

Page 8, line 30. Same concern about category data dependence upon V-Chip ratings. Similar revision.

Page 12, line 21. Category data works this way. V-Chip setting is TV-14

with V category data. This means that programs TV-Y, TV-Y7, TV-G, TV-PG and TV-14 can all be viewed. If a TV-PG or TV-14 program has a V category bit, then the program is blocked. All TV-MA programs are also blocked.

Just

for your info, what constitutes V for TV-MA will be more violent than for TV-PG because TV-MA programming is more mature and has adult content.

In

summary, category data further restricts the V-Chip rating. When the program and the selected category data match then the program is blocked even if the V-Chip setting is permitted:

If I understand you, the problem with paragraph 41 is that the category data is not dependent on the ratings. I will revise accordingly. Please confirm this is or is not correct.

Page 13, line 2 -5. Not exactly: see the previous comment. Same as above.
Please confirm.

Figure 7. Missing TV-G (should be between TV-Y7 and TV-PG) with no
applicable category data. Corrected.

"MMS <Orrick.com>" made the following annotations.

NOTICE TO RECIPIENT: THIS E-MAIL IS MEANT FOR ONLY THE INTENDED RECIPIENT OF THE
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9/29/2009

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<http://www.orrick.com>
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EXHIBIT I

ORRICK, HERRINGTON & SUTCLIFFE LLP
4 PARK PLAZA, SUITE 1600
IRVINE, CA 92614-2558
tel 949-567-6700
fax 949-567-6710
WWW.ORRICK.COM

September 5, 2003

Kenneth S. Roberts
(949) 567-6700
kroberts@orrick.com

Mr. Jim Hicks
MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC.
9351 Jeronimo Road
Irvine, California 92618-1904

Re: U.S. Patent Application
PASSIVE ENFORCEMENT METHOD FOR MEDIA RATINGS
Inventor: Polly Stecyk
Orrick Docket 705397.53

Dear Jim:

Enclosed are the application and drawings along with the formal papers for the above-identified patent application. Please arrange for Polly Stecyk to review the application and drawings. If it meets with her approval, please have the documents signed in the order identified below.

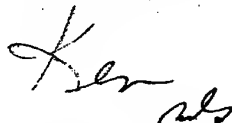
1. The Declaration needs to be **signed and dated** by the inventor before any other papers.
2. The Assignment from the inventor to Mitsubishi Digital Electronics America, Inc., needs to be **signed and dated before a Notary Public**. Also, please insert the name of the city where the inventor is when this document was executed.
3. The Power of Attorney needs to be **signed and dated** by Masateru Itoh.

Also, it is important that the Power of Attorney not be signed by Mr. Itoh until after the inventor has executed the Assignment; if not, the Power of Attorney will be meaningless.

Mr. Jim Hicks
September 5, 2003
Page 2

After all the documents have been executed, please return them to me for filing with the U.S. Patent and Trademark Office as soon as possible.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Ken S. Roberts".

Kenneth S. Roberts

KSR:mls
Enclosures

EXHIBIT J

Docket Information
705397.53

DECLARATION Utility Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **PASSIVE ENFORCEMENT METHOD FOR MEDIA RATINGS**, the specification of which

(Check One)

☒
☐

is attached hereto OR

was filed on _____ as United States Application Serial No. _____ or PCT International Application No. _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Date of Filing	Priority Claimed	
			Yes	No

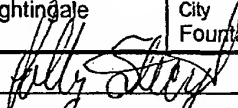
I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date	Status-Patented, Pending or Abandoned

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

201	FULL NAME OF INVENTOR	FIRST Name Polly	MIDDLE Initial	LAST Name Stecyk	
	RESIDENCE & CITIZENSHIP	City Fountain Valley	State or Foreign Country California	Country of Citizenship United States of America	
	POST OFFICE ADDRESS	8871 Nightingale Avenue	City Fountain Valley	State or Country California	Zip Code 92708
INVENTOR'S SIGNATURE 			DATE 9/9/03		

202	FULL NAME OF INVENTOR	FIRST Name	MIDDLE Initial	LAST Name	
	RESIDENCE & CITIZENSHIP	City	State or Foreign Country	Country of Citizenship	
	POST OFFICE ADDRESS		City	State or Country	Zip Code
INVENTOR'S SIGNATURE _____			DATE _____		

203	FULL NAME OF INVENTOR	FIRST Name	MIDDLE Initial	LAST Name	
	RESIDENCE & CITIZENSHIP	City	State or Foreign Country	Country of Citizenship	
	POST OFFICE ADDRESS		City	State or Country	Zip Code
INVENTOR'S SIGNATURE _____			DATE _____		

204	FULL NAME OF INVENTOR	FIRST Name	MIDDLE Initial	LAST Name	
	RESIDENCE & CITIZENSHIP	City	State or Foreign Country	Country of Citizenship	
	POST OFFICE ADDRESS		City	State or Country	Zip Code
INVENTOR'S SIGNATURE _____			DATE _____		

205	FULL NAME OF INVENTOR	FIRST Name	MIDDLE Initial	LAST Name	
	RESIDENCE & CITIZENSHIP	City	State or Foreign Country	Country of Citizenship	
	POST OFFICE ADDRESS		City	State or Country	Zip Code
INVENTOR'S SIGNATURE _____			DATE _____		